Draft
Volume 2

NORTH SAN PABLO BAY RESTORATION AND REUSE PROJECT (NORTH BAY WATER RECYCLING PROGRAM)

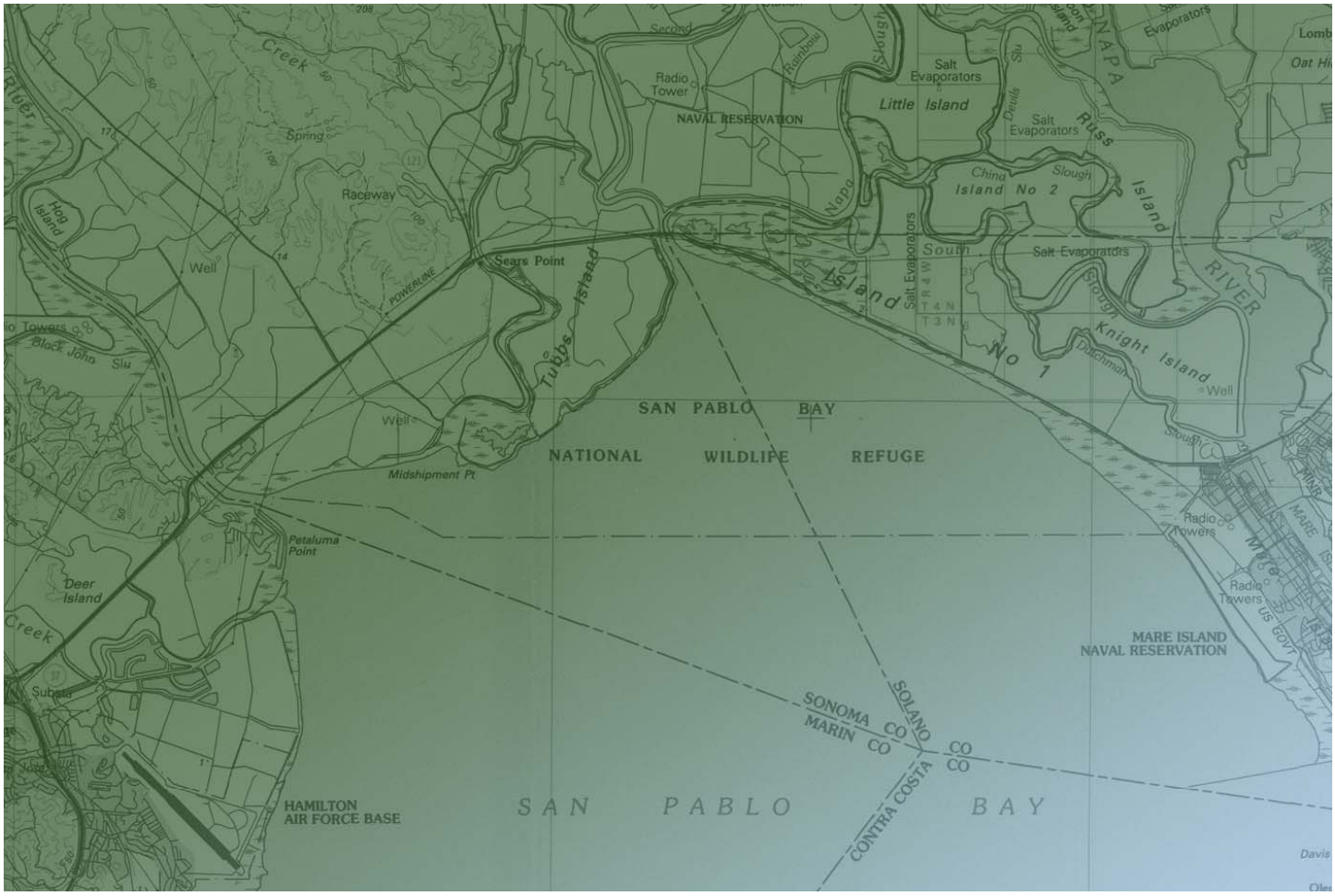
Environmental Impact Report/ Environmental Impact Statement

SCH# 2008072096

Prepared for:
Bureau of Reclamation

North Bay Water Reuse Authority

May 2009



Member Agencies

Contributing Agencies

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Member Agencies

Contributing Agencies

225 Bush Street
Suite 1700
San Francisco, CA 94104
415.896.5900
www.esassoc.com

Los Angeles

Oakland

Olympia

Petaluma

Portland

Sacramento

San Diego

Seattle

Tampa

Woodland Hills

206088.01

ESA

NORTH SAN PABLO BAY RESTORATION AND REUSE PROJECT

Environmental Impact Report / Environmental Impact Statement

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3.10 Hazards and Hazardous Materials

This section describes the existing setting related to hazards and hazardous materials based on the current conditions, a regulatory database search for the action area, and the federal, state, and local regulations related to hazardous materials that would apply to the North Bay Water Recycling Program (NBWRP). Based on an evaluation of the existing conditions, the potential for hazards and hazardous materials impacts related to construction and operation of NBWRP is discussed. The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

3.10.1 Affected Environment/Setting

Materials and waste are considered hazardous based on four characteristics: toxicity (if they are poisonous), ignitability (can be ignited), corrosivity (corrode other materials), or reactivity (react violently, explode, or generate vapors when mixed with air). According to the California Health and Safety Code (Section 25501), “hazardous material” means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials released during past industrial and commercial operations could be encountered during excavation for the NBWRP, and require proper handling, transport, and disposal. In addition, chemicals used at the wastewater treatment plants (WWTPs) associated with the NBWRP may be considered hazardous materials and would be subject to appropriate regulations.

Regional Conditions – Hazardous Materials

Land use within the action area is a mix of agriculture and open space in the rural areas and commercial, industrial, and residential use in the urban areas, which primarily surround the cities of San Rafael, Novato, Sonoma, and Napa. Agricultural operations involve the use of petroleum fuels, pesticides, and fertilizers. Pesticides and fertilizers are applied directly to the soil, and potential releases of petroleum fuels can occur through spills and leaks from storage tanks. In addition, there is potential for release of hazardous materials from unregulated, private refuse dumps in remote areas. Commercial and industrial operations have the potential to release hazardous materials to soil and groundwater within the action area. Potential sources include gasoline service stations and industries that use solvents or other hazardous materials. Residential land use can also result in the release of hazardous materials.

A regulatory database search of properties was conducted within one-eighth mile (approximately 660 feet) of project components associated with the Phase 1 implementation plan (Environmental Data Resources [EDR], 2008a-c). This buffer was chosen based on professional judgment considering the use of hazardous materials in the action area (comprised of mainly open space and rural land uses, except within the vicinity of the cities of San Rafael, Novato, Sonoma, and Napa) and the size of the action area. The database search involved a search of more than 60 different federal, state, tribal, and EDR proprietary environmental databases for sites with

documented use, storage, or release of hazardous materials or petroleum products. The EDR reports identified historically contaminated properties, businesses that use, generate, or dispose of hazardous materials or petroleum products in their operations, and active contaminated sites that are currently under assessment and/or remediation. Databases that are no longer updated, such as the Cortese List, do not provide relevant information and are not discussed further. Facilities or sites that are closed following remediation and the remediation effort has satisfied the regulatory agency overseeing the effort, or sites that have not experienced release of hazardous materials, are not discussed further in this section.

The database search results include facilities that handle hazardous materials but have not necessarily had a release to the environment. The databases include the Resource Conservation and Recovery Act (RCRA) large- and small-quantity generator lists (RCRA-LQG and RCRA-SQG), RCRA sites not generating hazardous waste (RCRA-NonGen), the Facility Index System Database (FINDS), the Solid Waste Facilities/Landfill Sites Database (SWF/LF), the California State Water Resources Control Board Waste Discharge System Database (CA-WDS), the Waste Management Unit Database (WMUDS/SWAT), the Facility Inventory Database (CA FID UST), the Underground Storage Tank Database (UST), the Recycling Facilities in California Database (SWRCY), the Aboveground Storage Tank Database (AST), the Drycleaner Database (CLEANERS), the Hazardous Waste Manifests Database (HAZNET), and the Emissions Inventory Database (EID). For the purposes of this analysis, it was assumed that such facilities do not pose a threat to human health or the environment, and they were eliminated from further analysis. Further sites that have been investigated but where no remediation was indicated, such as proposed school sites listed on the School Sites Evaluated by the California Department of Toxic Substances (DTSC) database (SCH) and the DTSC Mitigation and Brownfields Reuse Database (ENVIROSTOR) are not discussed. Additionally, databases that are no longer updated, such as the Cortese List, the Statewide Environmental Evaluation and Planning System UST listing (SWEEPS UST), and the California Bond Expenditure Plan (CA BOND EXP. PLAN) do not provide relevant information and are not discussed further. Along with this, sites that are documented as closed cases, are not included in the evaluation. This includes the Comprehensive Environmental Response, Compensation, and Liability Information System No Further Remedial Action Planned Database (CERCLIS-NFRAP).

The results of the database search were reviewed and are discussed below for each Member Agency. The maps from the EDR studies showing hazardous materials sites in and around the action area can be found in **Appendix 3.10A**.

LGVSD

Table 3.10-1 identifies the databases that were searched, a brief database description, and the total number of records found for the LGVSD service area.

As shown in **Tables 3.10-1** and **3.10-2**, the database search indicates 53 sites on federal or state regulatory databases within the LGVSD service area; 45 sites are located in Novato and eight are located in San Rafael (EDR, 2008a). Some sites are listed in multiple regulatory databases. The databases, in which the 53 sites are listed, are described below.

TABLE 3.10-1
RESULTS OF THE HAZARDOUS MATERIALS DATABASE SEARCH FOR THE LGVSD SERVICE AREA, CITY OF NOVATO

Database	Brief Database Description	Records Found
Federal Records		
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System Database	1
CERC-NFRAP	CERCLIS No Further Remedial Action Planned Database	1
RCRA-SQG	RCRA Small Quantity Generator Database	3
RCRA-NonGen	RCRA Sites Not Generating Hazardous Waste Database	1
FUDS	Formerly Used Defense Sites Database	1
FINDS	Facility Index System Database	7
State Records		
SCH	School Sites Evaluated by DTSC Database	1
SWF/LF	Solid Waste Facilities/Landfill Sites Database	1
CA-WDS	California Water Resources Control Board Waste Discharge System Database	1
WMUDS/SWAT	Waste Management Unit Database	1
LUST	Leaking Underground Storage Tank Database	1
SLIC	Spills, Leaks, Investigations, and Cleanups Section Database	1
UST	Underground Storage Tank Database	5
HIST UST	Historic Underground Storage Tank Database	1
CHMIRS	California Hazardous Materials Incident Report System Database	1
HAZNET	Hazardous Waste Manifests Database	16
EMI	Emissions Inventory Database	1
ENVIROSTOR	DTSC Site Mitigation and Brownfields Reuse Database	1
	Total Records Found	**45**

SOURCE: EDR, 2008a

TABLE 3.10-2
RESULTS OF THE HAZARDOUS MATERIALS DATABASE SEARCH FOR THE LGVSD SERVICE AREA, CITY OF SAN RAFAEL

Database	Brief Database Description	Records Found
Federal Records		
FUDS	Formerly Used Defense Sites Database	1
State Records		
Cortese	Contaminated Water Wells Database	1
LUST	Leaking Underground Storage Tank Database	1
SLIC	Spills, Leaks, Investigations, and Cleanups Section Database	1
UST	Underground Storage Tank Database	2
CA FID UST	Facility Inventory Database	0
HIST UST	Historic Underground Storage Tank Database	0
HAZNET	Hazardous Waste Manifests Database	2
	Total Records Found	**8**

SOURCE: EDR, 2008a

CERCLIS

The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database contains sites that are either on or proposed for inclusion on the National Priorities List (NPL). The NPL is a list of hazardous waste sites that are eligible for long-term remedial action financed under the federal Superfund program. The following CERCLIS record was found in the LGVSD Service Area:

- Hamilton Air Force Base (Novato)

FUDS

The Formerly Used Defense Sites Properties (FUDS) list contains sites at which the U.S. Army Corps of Engineers actively works or prepares to undertake cleanup action. The following FUDS sites were identified in the LGVSD Service Area:

- Hamilton Army Airfield (Novato)
- San Francisco Nike Battery 93 (San Rafael)

LUST

The Leaking Underground Storage Tank (LUST) database lists LUST incidents reported by the State Water Resources Control Board. The LUST sites may release contaminated materials into the soil which has the potential to migrate off the subject property, typically through contact with groundwater. The following LUST records were found in the LGVSD Service Area:

- McInnis Golf Course (listed as “Leak being confirmed”) (San Rafael)
- Hamilton Army Airfield (Novato)

SLIC

The Spills, Leaks, Investigation, and Cleanup (SLIC) Program database, a Regional Water Quality Control Board (RWQCB) program, includes sites where a hazardous materials spill or leak has occurred. The following SLIC record, excluding one closed case, was found in the LGVSD Service Area:

- Hamilton Army Airfield (Novato)

CHMIRS

The California Hazardous Material Incident Report System (CHMIRS) provides information on reported hazardous material incidents, including accidental releases or spills, from the California office of Emergency Services. The following record appears for the LGVSD Service Area:

- 373 Bolling Circle (Novato)

Novato SD

Table 3.10-3 presents the results of the EDR regulatory database search for the Novato SD service area (EDR, 2008a).

TABLE 3.10-3
RESULTS OF HAZARDOUS MATERIALS DATABASE SEARCH FOR THE NOVATO SD SERVICE AREA

Database	Brief Database Description	Records Found
Federal Records		
CERC-NFRAP	CERCLIS No Further Remedial Action Planned Database	1
RCRA-LQG	RCRA Large Quantity Generator Database	2
RCRA-SQG	RCRA Small Quantity Generator Database	15
ERNS	Emergency Response Notification System Database	6
FINDS	Facility Index System Database	29
State Records		
CA-WDS	California Water Resources Control Board Waste Discharge System Database	4
Cortese	Contaminated Water Wells Database	14
LUST	Leaking Underground Storage Tank Database	16
SLIC	Spills, Leaks, Investigations, and Cleanups Section Database	2
UST	Underground Storage Tank Database	47
CA FID UST	Facility Inventory Database	13
HIST UST	Historic Underground Storage Tank Database	26
SWRCY	Recycling Facilities in California Database	1
AST	Aboveground Storage Tank Database	6
SWEEPS UST	Statewide Environmental Evaluation and Planning System Database	14
CHMIRS	California Hazardous Materials Incident Report System Database	7
Notify 65	State Water Resources Control Board's Proposition 65 Database	3
CLEANERS	Drycleaner Database	3
HAZNET	Haznet Database	77
EMI	Emissions Inventory Database	9
ENVIROSTOR	DTSC Site Mitigation and Brownfields Reuse Database	4
	Total Records Found	**299**

SOURCE: EDR, 2008b

As shown in Table 3.10-3, a total of 299 sites are listed on federal or state regulatory databases in the project vicinity within the Novato SD service area. Some sites appear on more than one regulatory database listing.

ERNS

The Emergency Response Notification System (ERNS), administered by the U.S. Environmental Protection agency (USEPA), provides information on reported releases of oil and hazardous substances. The following sites appear on the ERNS database in the Novato SD service area:

- 777 San Marin Drive
- 7473 Redwood Boulevard (2 listings)
- 7595 Redwood Boulevard
- 1625 Hill Road
- 200 Vintage Way

LUST

The following LUST records, excluding closed cases, were reported for the Novato SD service area:

- H&J Tire (listed as “Leak being confirmed”)
- Unocal (listed as “Remedial action (cleanup) underway”)
- Novato Unified School District (listed as “Preliminary site assessment workplan submitted”)
- A&A Gas Station (listed as “Remedial action (cleanup) underway”)
- Big 4 Rents, Inc. (listed as “Pollution Characterization”)
- Novato Bus Facility (listed as “Preliminary site assessment underway”)
- Novato SD (listed as “Remedial action (cleanup) underway”)
- Novato Community Hospital (listed as “Post remedial action monitoring”)
- Shell (listed as “Pollution Characterization”)
- Mobil (listed as “Pollution Characterization”)

SLIC

The following SLIC sites were identified within the Novato SD service area:

- Arnold’s Dismantlers
- Seven To Seven Cleaners (listed as “Remediation Plan Approved”)

CHMIRS

The following CHMIRS records, excluding completed cases, appear for the Novato SD service area:

- 7473 Redwood Boulevard
- 15 Wendy Court
- 1064 Susan Way

Notify 65

The Notify 65 database contains facility notifications concerning any release that could impact drinking water and thereby pose a risk to public health. The following sites appear on the Notify 65 list for the Novato SD Service Area:

- Via Gas Station
- Golden Gate Transit
- Marin County Health

SVCSD

Table 3.10-4 presents the results of the EDR regulatory database search for the SVCSD service area (EDR, 2008b).

There are a total of 237 sites that appear on federal or state regulatory databases in the project vicinity within the SVCSD service area. Some sites appear on more than one regulatory database listing.

TABLE 3.10-4
RESULTS OF HAZARDOUS MATERIALS DATABASE SEARCH FOR THE SVCSD SERVICE AREA

Database	Brief Database Description	Records Found
Federal Records		
RCRA-SQG	RCRA Small Quantity Generator Database	10
RCRA-NonGen	RCRA Sites Not Generating Hazardous Waste Database	2
ERNS	Emergency Response Notification System Database	7
FINDS	Facility Index System Database	18
State Records		
SWF/LF	Solid Waste Facilities/Landfill Sites Database	2
CA-WDS	California Water Resources Control Board Waste Discharge System Database	9
Cortese	Contaminated Water Wells Database	19
LUST	Leaking Underground Storage Tank Database	28
SLIC	Spills, Leaks, Investigations, and Cleanups Section Database	1
UST	Underground Storage Tank Database	15
HIST UST	Historic Underground Storage Tank Database	28
SWEEPS UST	Statewide Environmental Evaluation and Planning System Database	18
CHMIRS	California Hazardous Materials Incident Report System Database	11
Notify 65	State Water Resources Control Board's Proposition 65 Database	1
CLEANERS	Drycleaner Database	1
HAZNET	Haznet Database	60
EMI	Emissions Inventory Database	6
ENVIROSTOR	DTSC Site Mitigation and Brownfields Reuse Database	1
	Total Records Found	**237**

SOURCE: EDR, 2008c

ERNS

The following sites appear on the ERNS database for the SVCSD service area:

- 623 1st Street West (2 listings)
- "2½ Up from Highway 37" in Sonoma
- 2nd Street East, 200 Block
- 389 4th Street East
- 379 4th Street
- 238 Todd Road

LUST

The following LUST records, excluding closed cases, were reported for the SVCSD service area:

- Stu's 76 (listed as "Pollution Characterization")
- Broadway Shell of Sonoma (listed as "Remedial Plan")
- Sonoma Fire Dept (listed as "Remedial action (cleanup) underway")
- Mayo Family Property (listed as "Preliminary site assessment underway")
- Chevron #90509 (listed as "Pollution Characterization")

- Unocal #5994 (listed as “Post remedial action monitoring”)
- Sebastiani Vineyards (listed as “Post remedial action monitoring”)
- Sebastiani Vineyards 0155,006.9 (listed as “Remedial action (cleanup) underway”)
- Four Corners Service (listed as “Remedial action (cleanup) underway”)
- Daniel Auto Repair (listed as “Remedial action (cleanup) underway”)
- Batto Property (listed as “Leak being confirmed”)
- Schaal Property (listed as “Pollution Characterization”)
- E.K. Excavating, Inc. (listed as “Remedial action (cleanup) underway”)

SLIC

The following SLIC site was identified within the SVCSD service area:

- Royal Crown Cleaners

CHMIRS

The following CHMIRS records, excluding completed cases, appear for the SVCSD service area:

- 623 1st Street West
- 389 4th Street East (3 listings)
- Sebastiani Vineyards
- 20490 Broadway
- 1283 Felder Road
- 22675 8th Street East (2 listings)

Notify 65

The following site appears on the Notify 65 list for the SVCSD service area:

- Jackpot Station

Napa SD

Results of the EDR regulatory database search for the Napa SD service area are provided in **Table 3.10-5** (EDR, 2008c).

A total of 125 sites appear on federal or state regulatory databases in the Napa SD service area. Some sites appear on more than one regulatory database listing.

ERNS

The following sites appear on the ERNS database for the Napa SD service area:

- 2100 Napa Vallejo
- 2301 Napa-Vallejo Highway

TABLE 3.10-5
RESULTS OF HAZARDOUS MATERIALS DATABASE SEARCH FOR THE NAPA SD SERVICE AREA

Database	Brief Database Description	Records Found
Federal Records		
CERC-NFRAP	CERCLIS No Further Remedial Action Planned Database	1
RCRA-SQG	RCRA Small Quantity Generator Database	3
RCRA-NonGen	RCRA Sites Not Generating Hazardous Waste Database	1
ERNS	Emergency Response Notification System Database	2
FTTS	Toxics/Pesticides Data System Database	2
HIST FTTS	Historic Pesticides Data System Database	3
ICIS	Integrated Compliance Information System	1
FINDS	Facility Index System Database	10
State Records		
SWF/LF	Solid Waste Facilities/Landfill Sites Database	1
CA-WDS	California Water Resources Control Board Waste Discharge System Database	3
WMUDS/SWAT	Waste Management Unit Database	1
Cortese	Contaminated Water Wells Database	6
LUST	Leaking Underground Storage Tank Database	7
SLIC	Spills, Leaks, Investigations, and Cleanups Section Database	1
UST	Underground Storage Tank Database	9
CA FID UST	Facility Inventory Database	14
HIST UST	Historic Underground Storage Tank Database	12
AST	Aboveground Storage Tank Database	3
SWEEPS UST	Statewide Environmental Evaluation and Planning System Database	12
CHMIRS	California Hazardous Materials Incident Report System Database	1
VCP	Voluntary Cleanup Program Properties Database	1
CDL	Clandestine Drug Laboratories	1
HAZNET	Haznet Database	26
EMI	Emissions Inventory Database	3
ENVIROSTOR	DTSC Site Mitigation and Brownfields Reuse Database	1
	Total Records Found	**125**

SOURCE: EDR, 2008d

LUST

The following LUST records, excluding closed cases, were reported for the Napa SD service area:

- Pacific Coast Supplies
- Syar Industries, Inc. (2 listings, listed as “Preliminary site assessment underway”)

SLIC

The following SLIC site was identified within the Napa SD service area:

- Syar Industries, Inc. Napa Qua

CHMIRS

The following CHMIRS record appears for the Napa SD service area:

- Napa State Hospital

Regional Conditions- Hazards

LGVSD and Novato SD

According to the map of wildland areas available on the Novato Fire Protection (2008), portions of the proposed pipeline route in both the LGVSD and Novato SD service areas are located in fire hazard zones near wildland areas.

SVCSD

According to fire hazard severity mapping by the California Department of Forestry, approximately half of Sonoma County is considered at high or very high risk of wildfire. The highest hazard is found in mountainous areas with dry summers, plenty of fuel, and steep slopes (Sonoma County, 2008). The proposed pipeline corridor is not located within the areas mapped as having high wildland fire hazard.

Napa SD

According to the Napa County Baseline Data Report (2005), Napa County has a high wildland fire potential due to its combination of highly flammable chaparral vegetation, steep inaccessible wildlands, and high levels of recreational use. The proposed pipeline corridor within the Napa SD service area is located within the Napa Valley floor, which has the largest area of high fire hazard. However, the majority of the proposed pipeline corridor is located within the developed area of the City of Napa and nearby unincorporated Napa County, which has a lower fire severity hazard than open grasslands.

3.10.2 Regulatory Framework

Federal

The USEPA is the lead federal agency responsible for enforcing federal regulations regarding hazardous materials. The primary legislation governing hazardous materials are the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Superfund Amendments and Reauthorization Act (SARA).

RCRA

RCRA regulates the generation, transportation, treatment, storage and disposal of hazardous waste by “large-quantity generators” (1,000 kilograms per month or more) through comprehensive life cycle or “cradle to grave” tracking requirements. The requirements include maintaining inspection logs of hazardous waste storage locations, records of quantities being

generated and stored, and manifests of pick-ups and deliveries to licensed treatment/storage/ disposal facilities. RCRA also identifies standards for treatment, storage, and disposal.

CERCLA

CERCLA, also known as Superfund, created a tax on the chemical and petroleum industries to provide for response and cleanup of hazardous substances that may endanger public health or the environment. CERCLA established requirements for abandoned hazardous waste sites and provided for liability of persons responsible for releases of hazardous waste at these sites.

SARA

SARA amended CERCLA to increase state involvement and required Superfund actions to consider state environmental laws and regulations. SARA also established a regulatory program for USTs and the Emergency Planning and Community Right-to-Know Act.

Toxic Substances Control Act (TSCA)

TSCA established the mechanisms by which the USEPA tracks, screens, and tests industrial chemicals that are currently produced or imported into the United States that may pose an environmental or human-health hazard.

Occupational Safety and Health Act

The Occupational Safety and Health Administration (OSHA) administers the Occupational Safety and Health Act, which requires special training of handlers of hazardous materials, notification to employees who work in the vicinity of hazardous materials, and acquisition from the manufacturer of material safety data sheets (MSDS). An MSDS describes the proper use of hazardous materials. The Act also requires and training of employees to remediate any hazardous material accidental releases.

State

The California Department of Toxic Substances Control (DTSC) is primarily responsible for the regulation of hazardous materials in California. DTSC is responsible for the management of hazardous substances and oversees the investigation and remediation of contaminated sites. The San Francisco Bay Regional Water Quality Control Board (RWQCB) is primarily responsible for the protection of groundwater and surface water resources from hazardous materials.

California Hazardous Waste Control Law, California Health and Safety Code, Division 20, Chapter 6.5

The California Hazardous Waste Control Law is the basic hazardous waste statute in California and is administered by DTSC. This law is similar to, but more stringent than RCRA and applies to a broader range of hazardous wastes and requires recycling and waste reduction programs.

Carpenter-Presley-Tanner Hazardous Substances Account Act, California Health and Safety Code, Division 20, Chapter 6.8

The Carpenter-Presley-Tanner Hazardous Substances Account Act authorizes DTSC and the RWQCB to require, oversee, and recover costs for the remediation of sites where contamination of soil and water present a hazard to human health or the environment.

California Occupational Safety and Health Act

The California Occupational Safety and Health Administration (Cal OSHA) regulates worker safety similar to federal OSHA but also requires preparation of an Injury and Illness Prevention Program, an employee safety program of inspections, procedures to correct unsafe conditions, employee training, and occupational safety communication. In addition, Cal OSHA regulations indirectly protect the general public by requiring construction managers to post warnings signs, limit public access to construction areas, and obtain permits for work considered to present a significant risk of injury, such as excavations greater than five feet.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

Cal EPA adopted regulations in 1996 to establish a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program and designated local agencies called Certified Unified Program Agencies (CUPA). The local agencies regulate hazardous substances management with respect to the following areas:

- Hazardous waste generators and hazardous waste onsite treatment;
- USTs;
- Aboveground storage tanks (ASTs);
- Hazardous materials release response plans and inventories (business plans), including Unified Fire Code hazardous materials management plans and inventories; and
- Risk management and accidental release prevention programs.

The CUPAs in the action area include the County of Marin Public Works Department, the County of Sonoma Department of Emergency Services, Hazardous Materials Division, and the County of Napa Department of Environmental Management.

Waters Bill of 1985 (Business Emergency Plan/Hazardous Materials Business Plan)

Administered by the CUPA, the Waters Bill requires facilities, which meet minimum hazardous materials use/storage thresholds to file a Business Emergency Plan (BEP), or a Hazardous Materials Business Plan (HMBP). A BEP or HMBP includes a complete inventory of the hazardous materials being used and stored on a site. Employee training and emergency response plans and procedures for the accidental release of hazardous materials are also included in a BEP.

Safe Drinking Water and Toxics Enforcement Act (Proposition 65)

Administered by the CUPA, the Safe Drinking Water and Toxics Enforcement Act requires businesses, which use hazardous materials to post public notice of release of any accidental hazardous materials, or other potential exposure to materials known to the State of California to cause cancer or reproductive toxicity. The Act prohibits such businesses from releases of hazardous materials into the environment at levels above identified risk levels.

La Follette Bill of 1986 (Risk Management Plan)

Administered by the CUPA, the La Follete Bill requires preparation of a Risk Management Plan (RMP) for commercial operations, which use hazardous materials at defined thresholds. The RMP includes management, engineering and safety studies, and plans for physical improvements to minimize accidental hazardous materials releases. Implementation of the RMP occurs via fire inspections, plan checking, BEP/HMBP disclosure requirements, and filing of the RMP (updated every three years).

Local

Uniform Fire Code (UFC)

The Uniform Fire Code is administered by the CUPA via regular site inspections. The code regulates the type, configuration, and quantity of hazardous materials that may be stored within structures or in outdoor areas.

General Plans

The general plans, policies, and regulations associated with impacts to hazards and hazardous materials within the affected jurisdictions are presented in **Appendix 3.10** of this EIR/EIS.

3.10.3 Environmental Consequences/Impacts

Significance Criteria for Impact Analysis

Based on the Appendix G of the *CEQA Guidelines*, project implementation would have significant impacts and environmental consequences related to hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- Be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the action area;
- Be located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the action area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Potential issues that would not be applicable to NBWRP or would have no impact and are not discussed further are listed below:

- The NBWRP could result in an impacts if there are safety hazards due to proximity of a public airport or private airstrip. There are no airports or airstrips within one mile of proposed aboveground project facilities. Therefore, no impact is expected.
- With oversight by the local CUPA, each WWTP associated with NBWRP has developed a Business Plan that includes an Emergency Response Plan and inventory of hazardous materials that are handled and stored onsite. Policies and procedures for emergency response are also established in the local general plans relevant to the action area, as described above in Section 3.10.2, Regulatory Framework. Compliance with these existing plans, policies and procedures during construction and operation would ensure that the NBWRP will not impair implementation of or physically interfere with adopted emergency response plans. Therefore, no impacts related to that issue are anticipated.
- Construction activities associated with treatment plant upgrades would not involve substantial excavation as to increase exposure to contaminated soil or groundwater, therefore the NBWRP would not result in any impacts from exposure to hazardous materials released from contaminated soil and groundwater.

Environmental Consequences/Impact Analysis

Impact 3.10.1: Exposure to Hazardous Materials. Project construction could expose workers and the public to hazardous materials that could be present in the soil or shallow groundwater encountered during excavation. (Less than Significant with Mitigation)

The NBWRP would require excavation of soils for construction of proposed pipelines, pump stations, and storage facilities. If contaminated soils or groundwater were to be encountered during excavation, exposure to hazardous materials could result in adverse environmental and health effects to both workers and the general public. In general, proposed pipeline routes are

along existing roadways and proposed storage facilities are located within existing WWTP properties. As a result, current use of hazardous materials in the proposed construction areas is expected to be limited. However, there is a potential for release of hazardous materials from historic use of properties along the proposed pipeline routes and other facility sites. Hazardous materials in contaminated soil could be released through dust and could result in exposure to sensitive receptors, including schools within one-quarter mile. This could be a significant impact. However, implementation of **Mitigation Measures 3.10.1a** through **3.10.1d** described below would reduce these potential impacts to a less-than-significant level.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.10-1, No Action**).

Under future baseline (2020) conditions, project impacts associated with the hazardous conditions within the region would not be significantly different from those under existing conditions. Construction and operation of the proposed facilities would subject workers to hazards. However implementation of **Mitigation Measure 3.10.1a** through **3.10.1d**, which includes development of a contingency plan in the event of soil contamination, proper removal of impacted soil, preparation of a Health and Safety Plan that applies to excavation, and inclusion of a Dust Abatement Program, would reduce the impact to less-than-significant-level. A discussion of individual Member Agencies is provided below.

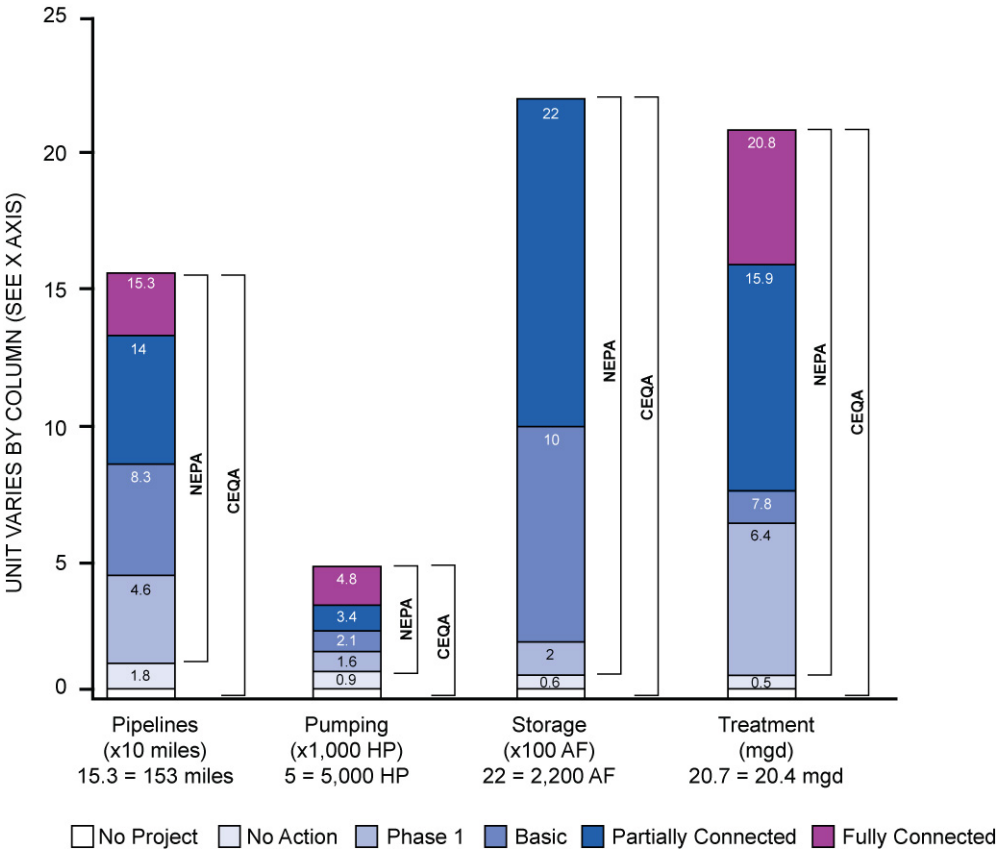
LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

As discussed in Section 3.10.1, sites that may contain contaminated soils have been identified in the Novato SD service area (EDR, 2008a). During project construction in the North Service Area along the pipeline routes along Olive Avenue, Atherton and Redwood Boulevards, and San Marin Avenue and pump station and storage sites, there is potential to encounter hazardous materials in excavated soil or shallow groundwater, since contaminants in soil have the potential to migrate

CHART 3.10-1
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

via shallow groundwater from the properties identified. The workers and public could be exposed to hazardous materials present in excavated soil or groundwater, as compared to existing conditions, which could be a significant impact. Implementation of **Mitigation Measures 3.10.1a** through **3.10.1d**, would reduce the impact to a less-than-significant level.

SVCSD

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be constructed along with one pump station and new storage facility at the SVCSD WWTP. The impact would be similar to that discussed under Novato SD and would be associated with increased potential for exposure of the workers and public to hazardous materials in excavated soil or shallow groundwater from sites identified in the SVCSD Service Area (EDR, 2008b). The impact could be significant. Implementation of **Mitigation Measures 3.10.1a** through **3.10.1d** described below would reduce the impact to a less-than-significant level.

Under the No Action Alternative, the Napa Salt Marsh Restoration Project would include construction of one of the options described in **Chapter 2, Project Description**. The impact for any of the three alternatives would be similar to that discussed under Novato SD and would be associated with increased potential for exposure of the workers and public to hazardous materials in excavated soil or shallow groundwater from sites identified in the SVCSD Service Area (EDR, 2008b) and therefore could be significant. Implementation of **Mitigation Measures 3.10.1a** through **3.10.1d** described below would reduce the impact to a less-than-significant level.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to workers from exposure to hazardous materials associated with the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts from exposure to hazardous materials by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would upgrade tertiary treatment capacity at the LGVSD WWTP and construct a new booster pump station; NMWD would install one of three pipeline options, described in **Chapter 2, Project Description**, which would connect the LGVSD Recycled Water Treatment Facility to facilities constructed by NMWD.

The following facilities are located within approximately 660 feet of the project components in the LGVSD service area (EDR, 2008a) and may pose a threat to human health or the environment from potential releases of hazardous materials:

- Hamilton Air Force Base,
- Hamilton Army Airfield,
- McInnis Golf Course,
- San Francisco Nike Battery 93, and
- 373 Bolling Circle.

Shallow pipeline excavations are proposed predominantly along existing roadways and would not be expected to encounter hazardous materials in excavated soil or shallow groundwater. However, contaminants in soil have the potential to migrate via shallow groundwater from adjacent properties, such as those listed above. In addition, excavation along existing railroad grades may encounter soils impacted by hazardous materials (e.g., polycyclic aromatic hydrocarbons from creosote-treated rail ties) at the surface or at shallow depths. Therefore, as

compared to existing conditions, there is a greater potential for exposure of workers and the public to hazardous materials in excavated soil or groundwater. This could be a significant impact. Implementation of **Mitigation Measures 3.10.1a** through **3.10.1d**, as discussed below, would reduce the impact to less-than-significant level.

Substantial excavation is not expected to occur during construction of the new pump station at the LGVSD WWTP property, therefore hazardous materials are not expected to be encountered during excavation. However, the potential does exist for hazardous materials to migrate in shallow groundwater from adjacent properties. The impact would be similar in nature to that discussed for the pipelines.

Novato SD/NMWD

The following facilities are located within 660 feet of the project components in the Novato SD service area (EDR, 2008b) and may pose a threat to human health or the environment from potential releases of hazardous materials:

- A&A Gas Station,
- Arnold's Dismantlers,
- Big 4 Rents, Inc.,
- Golden Gate Transit,
- H&J Tire,
- Marin County Health,
- Mobil,
- Novato Bus Facility,
- Novato Community Hospital,
- Novato Sanitary District,
- Novato Unified School District,
- Seven To Seven Cleaners,
- Shell,
- Unocal,
- Via Gas Station,
- 1625 Hill Road,
- 7473 Redwood Boulevard,
- 7595 Redwood Boulevard,
- 777 San Marin Drive,
- 1064 Susan Way,
- 200 Vintage Way, and
- 15 Wendy Court.

Potential construction-related impacts would be similar to those discussed under LGVSD. Please refer to the discussion above.

SVCSD

The following facilities are located within 660 feet the NBWRP components in the SVCSD service area (EDR, 2008c) and may pose a threat to human health or the environment from potential releases of hazardous materials:

- Batto Property,
- Broadway Shell of Sonoma,
- Chevron #90509,
- Daniel Auto Repair,
- E.K. Excavating, Inc.,
- Four Corners Service,
- Jackpot Station,
- Mayo Family Property,
- Royal Crown Cleaners,
- Schaal Property,
- Sebastiani Vineyards,
- Sonoma Fire Department
- Stu's 76,
- Unocal #5994,
- 623 1st Street West,
- 2 ½ Up from Highway 37 in Sonoma,
- 2nd Street East, 200 Block,
- 379 4th Street,
- 389 4th Street East,
- 22675 8th Street East,
- 20490 Broadway,
- 1283 Felder Road, and
- 238 Todd Road.

Construction of a new water storage pond and new pump station would occur within the existing SVCSD WWTP property and would not be expected to encounter hazardous materials. Potential impacts from installation of the proposed pipelines would be similar to those discussed under LGVSD. Please refer to the discussion above.

Under Phase 1, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

The following facilities are located within 660 feet of the NBWRP components in the Napa SD service area and may pose a threat to human health or the environment from potential releases of hazardous materials:

- Napa State Hospital,
- Pacific Coast Supplies,
- Syar Industries, Inc.,
- 2100 Napa Vallejo, and
- 2301 Napa-Vallejo Highway.

Reconfiguration of existing storage ponds would occur within the existing Napa SD WWTP property and would not be expected to encounter hazardous materials. New pump stations would be constructed at locations away from the existing WWTP property, and as such may encounter hazardous materials in soil or groundwater from historic land uses at these sites or at adjacent sites from which contaminants could migrate via groundwater. The impacts would be similar to those for SVCSD (see above).

Under Phase 1, there is increased potential during construction of MST Local Option 1 for exposure to hazardous materials in excavated soil or shallow groundwater from sites within the Napa SD service area (EDR, 2008c). Implementation of **Mitigation Measures 3.10.1a** through **3.10.1d** described below would reduce this impact to a less-than-significant level.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to workers from exposure to hazardous materials associated with the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

No additional pipelines or pump stations are proposed within the LGVSD service area under the Basic System, so impacts would be the same as under Phase 1.

Novato SD/NMWD

The impacts in the Novato SD service area would be similar to those under Phase 1 and **Mitigation Measures 3.10.1a** through **3.10.1d** would apply to the Basic System.

SVCSD

The Basic System would include additional pipelines and pumping capacity for SVCSD as compared to Phase 1, however the impacts in the SVCSD service area would be similar to those under Phase 1 and **Mitigation Measures 3.10.1a** through **3.10.1d** would apply to the Basic System.

Under the Basic System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under Phase 1.

Napa SD

The Basic System would include additional pipelines and pumping capacity for Napa SD as compared to Phase 1, however the impacts in the Napa SD service area would be similar to those under Phase 1 and **Mitigation Measures 3.10.1a** through **3.10.1d** would apply to the Basic System.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts from exposure to hazardous materials associated with the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Impacts associated with construction for LGVSD under the Partially Connected System would include impacts from construction of additional pipelines to Peacock Golf Course and Sears Point and pump stations. The impacts would be similar to those discussed under the Basic System. The impacts would be reduced to less than significant with implementation of **Mitigation Measures 3.10.1a** through **3.10.1d**.

Novato SD/NMWD

Impacts associated with construction for Novato SD under the Partially Connected System would include impacts from construction of additional pipelines as part of the Novato Urban Recycled Water Project and Sears Point area and pump stations. The impacts would be similar to those

discussed under the Basic System. The impacts would be reduced to less than significant with implementation of **Mitigation Measures 3.10.1a** through **3.10.1d**.

SVCSD

Impacts associated with construction for SVCSD under the Partially Connected System would result from construction of additional pipelines and pump stations in the Southern Sonoma Valley. The impacts would be similar to those discussed under the Basic System. The impacts would be reduced to less than significant with implementation of **Mitigation Measures 3.10.1a** through **3.10.1d**.

Under the Partially Connected System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the Basic System.

Napa SD

Impacts associated with construction for Napa SD under the Partially Connected System would include impacts from construction of additional pipelines and pump stations in the Carneros East and MST areas and in the WWTP area. The impacts would be similar to those discussed under the Basic System. The impacts would be reduced to less than significant with implementation of **Mitigation Measures 3.10.1a** through **3.10.1d**.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to workers from exposure to hazardous materials under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Fully Connected System, additional pumping capacity would be constructed to serve the Sears Point Reuse Area. The impacts would be similar but slightly greater as compared to those discussed for LGVSD under the Partially Connected System. Implementation of **Mitigation Measures 3.10.1a** through **3.10.1d** would reduce the potential impact to a less-than-significant level.

Novato SD/NMWD

Under the Fully Connected System, an additional 2.8 miles of pipeline and additional pumping capacity would be constructed as part of the Sears Point Reuse Area. The impacts would be similar but slightly greater as compared to those discussed for Novato SD under the Partially

Connected System. Implementation of **Mitigation Measures 3.10.1a** through **3.10.1d** would reduce the potential impact to a less-than-significant level.

SVCSD

Under the Fully Connected System, the NBWRP would involve construction of addition 10.5 miles of pipeline and additional pumping capacity to serve the Central Sonoma Valley Reuse Area. The impacts would be similar but slightly greater as compared to those discussed for SVCSD under the Partially Connected System. Implementation of **Mitigation Measures 3.10.1a** through **3.10.1d** would reduce the potential impact to a less-than-significant level.

Under the Fully Connected System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the Partially Connected System.

Napa SD

No additional project components are proposed within the Napa SD under the Fully Connected System, therefore potential impacts would be similar to those discussed under the Partially Connected System.

Mitigation Measures

Mitigation Measure 3.10.1a: Project contract specifications shall require that, in the event that evidence of potential soil contamination such as soil discoloration, noxious odors, debris, or buried storage containers, is encountered during construction, the contractor will have a contingency plan for sampling and analysis of potentially hazardous substances, including use of a photoionization detector. The required handling, storage, and disposal methods shall depend on the types and concentrations of chemicals identified in the soil. Any site investigations or remediation shall comply with applicable laws and will coordinate with the appropriate regulatory agencies,

Mitigation Measure 3.10.1b: If unknown USTs are discovered during construction, the UST, associated piping, and impacted soil shall be removed by a licensed and experienced UST removal contractor. The UST and contaminated soil shall be removed in compliance with applicable county and state requirements governing UST removal.

Mitigation Measure 3.10.1c: Prepare a project-specific Health and Safety Plan that would apply to excavation activities. The plan shall establish policies and procedures to protect workers and the public from potential hazards posed by hazardous materials. The plan shall be prepared according to federal and California OSHA regulations and submitted to the appropriate agency with jurisdiction prior to beginning site activities.

Mitigation Measure 3.10.1d: Project contract specifications shall include a Dust Abatement Program to minimize potential public health impacts associated with exposure to contaminants in soil dust.

Impact Significance with Mitigation: Less than Significant.

Impact 3.10.2: Release of Hazardous Materials During Construction. Project construction could increase the potential for accidental release of hazardous materials. (Less than Significant with Mitigation)

Construction activities would involve use of hazardous materials such as fuels, oils, solvents, and glues during construction. Inadvertent spills could occur during onsite fueling of equipment or by accident (e.g., puncture of a fuel tank through operator error or slope instability). Use of hazardous materials onsite would be required to comply with an approved Storm Water Pollution Prevention Plan (SWPPP), and implementation of best management practices (BMPs) related to fueling, vehicle washing and handling, use, and storage of chemicals would minimize any risk to either workers or the public. In addition, implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** described below would reduce this impact to a less-than-significant level.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Future baseline conditions (2020) for release of hazardous materials are assumed to be equivalent to current conditions.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.10-1, No Action**). A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact from accidental release of hazardous materials during construction would occur.

Novato SD/NMWD

Please refer to the discussion above for the impacts that would occur in the Novato SD service area. There is a greater potential for accidental releases of hazardous materials used during construction under No Action Alternative as compared to existing conditions. This could be a significant impact. Therefore, implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** would reduce the impact to a less-than-significant level.

SVCSD

Please refer to the discussion above for the impacts that would occur in the SVCSD service area. There is a greater potential for accidental releases of hazardous materials used during construction under No Action Alternative as compared to existing conditions, which could be a significant impact. Therefore, implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** would reduce the impact to a less-than-significant level.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact from accidental release of hazardous materials during construction would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The potential for accidental release of hazardous materials during construction of the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. Under the Phase 1 Implementation Plan, construction of pipelines, pump stations, water storage facilities, and WWTP upgrades would occur. Compared to existing conditions, there is increased potential for impacts from accidental release of hazardous materials used during construction. The construction activities would require the use of hazardous materials, including fuels, oils, solvents, and glues. Accidental releases of these hazardous materials could occur. The impact would be minimized by implementation of **Mitigation Measures 3.10.2a** through **3.10.2d**. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would construct additional pipeline, 72 horsepower (hp) pumping capacity, and 0.3 million gallons per day (mgd) in tertiary treatment capacity. The impacts discussed above in the Phase 1 summary would apply to the projects in the LGVSD service area.

Novato SD/NMWD

Under Phase 1, Novato SD would construct additional 9.8 miles of pipelines, 259 hp of pumping, and 1.2 mgd in tertiary treatment capacity. The impacts discussed above in the Phase 1 summary would apply to the projects in the Novato SD service area.

SVCSD

Impacts related to the SVRWP pipeline alignment and the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

Under Phase 1, Napa SD would construct an additional 17.5 miles of pipelines, 880 hp in pumping capacity, and 2.4 mgd in tertiary treatment capacity. Please refer to the discussion above for the impacts that would occur in the Napa SD service area. There is a greater potential for accidental releases of hazardous materials used during construction under Phase 1 as compared to No Action Alternative conditions, which could be a significant impact. Therefore, implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** would reduce the impact to a less-than-significant level.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The potential for accidental release of hazardous materials during construction of the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

As no additional facilities are proposed within the LGVSD under the Basic System, impacts associated with accidental releases of hazardous materials during construction are expected to be the same as under Phase 1 (i.e., mitigated to less-than-significant levels by implementation of **Mitigation Measures 3.10.2a** through **3.10.2d**).

Novato SD/NMWD

Additional components would be constructed within the Novato SD service area under the Basic System as compared to Phase 1. Therefore, although the impacts would be similar to those discussed under Phase 1, the impacts associated with the Basic System would be greater and could have a significant impact. Implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** would minimize the impact in the Novato SD service area.

SVCSD

Additional components would be constructed within the SVCSD service area under the Basic System as compared to Phase 1. Although the impacts would be similar to those discussed under Phase 1, the impacts associated with the Basic System would be greater could have a significant impact. Implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** would minimize the impact in the SVCSD service area.

Napa SD

Additional components would be constructed within the Napa SD service area under the Basic System as compared to Phase 1. Although the impacts would be similar to those discussed under Phase 1, the impacts associated with the Basic System would be greater could have a significant impact. Implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** would minimize the impact in the Napa SD service area.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The potential for accidental release of hazardous materials during construction of the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Partially Connected System, additional pipelines, pumping capacity, and treatment capacity would be constructed within the LGVSD service area as compared to the Basic System. Therefore, there is increased potential for impacts associated with accidental releases of hazardous materials during construction. However, the nature of the impact would be similar to those discussed under the Basic System. Please see discussion above.

Novato SD/NMWD

Under the Partially Connected System, additional pipelines, pumping capacity, and treatment capacity would be constructed within the Novato SD service area as compared to the Basic System. Therefore, there is increased potential for impacts associated with accidental releases of hazardous materials during construction. However, the nature of the impact would be similar to those discussed under the Basic System. Please see discussion above.

SVCSD

Under the Partially Connected System, additional pipelines and pumping capacity would be constructed within the SVCSD service area as compared to the Basic System. Therefore, there is increased potential for impacts associated with accidental releases of hazardous materials during construction. However, the nature of the impact would be similar to those discussed under the Basic System. Please see discussion above.

Napa SD

Under the Partially Connected System, additional pipelines, pumping capacity, and treatment capacity would be constructed within the Napa SD service area as compared to the Basic System.

Therefore, there is increased potential for impacts associated with accidental releases of hazardous materials during construction. However, the nature of the impact would be similar to those discussed under the Basic System. Please see discussion above.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The potential for accidental release of hazardous materials under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Fully Connected System, additional pumping capacity would be constructed within the LGVSD service area as compared to the Partially Connected System. Therefore, there is increased potential for impacts associated with accidental releases of hazardous materials during construction, and mitigation measures. However implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** would reduce the impact to less-than-significant level.

Novato SD/NMWD

Under the Fully Connected System, additional pipelines, pumping capacity, and treatment capacity would be constructed within the Novato SD service area under the Fully Connected System. Therefore, there is increased potential for impacts associated with accidental releases of hazardous materials during construction, and mitigation measures; however implementation of **Mitigation Measures 3.10.2a** through **3.10.2d** would reduce the impact to less-than-significant level.

SVCSD

Under the Fully Connected System, additional pipelines and pumping capacity would be constructed within the SVCSD service area under the Fully Connected System. Therefore, there is increased potential for impacts associated with accidental releases of hazardous materials during construction. However, implementation of Mitigation **Measures 3.10-2a** through **3.10-2d** would reduce the impact to less-than-significant level.

Napa SD. No additional facilities are proposed within the Napa SD service area under the Fully Connected System. Therefore, potential impacts from accidental releases of hazardous materials during construction would be the same as under the Partially Connected System.

Mitigation Measures

Mitigation Measure 3.10.2a: Consistent with the SWPPP requirements, the construction contractor shall be required to implement BMPs for handling hazardous materials onsite. The use of construction BMPs will minimize any adverse effects on groundwater and soils, and will include, but not limited to, the following:

- Follow manufacturers' recommendations and regulatory requirements for use, storage, and disposal of chemical products and hazardous materials used in construction;
- Spill control and countermeasures, including employee spill prevention/response training;
- Avoid overtopping construction equipment fuel gas tanks;
- During routine maintenance of construction equipment, properly contain and remove grease and oils; and
- Properly dispose of discarded containers of fuels and other chemicals.

Mitigation Measure 3.10.2b: The contractor shall follow the provisions of California Code of Regulations, Title 8, Sections 5163 through 5167 for General Industry Safety Orders to protect the action area from being contaminated by the accidental release of any hazardous materials and/or wastes. The local CUPA agency will be contacted for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling.

Mitigation Measure 3.10.2c: Oil and other solvents used during maintenance of construction equipment shall be recycled or disposed of in accordance with applicable regulatory requirements. All hazardous materials shall be transported handled, and disposed of in accordance with applicable regulatory requirements.

Mitigation Measure 3.10.2d: In the event of an accidental release of hazardous materials during construction, containment and clean up shall occur in accordance with applicable regulatory requirements.

Impact Significance With Mitigation: Less than Significant.

Impact 3.10.3: Release of Hazardous Materials During Long-term Operation. Project operation could increase the potential for accidental release of hazardous materials. (Less than Significant)

Project implementation would involve the storage and use of chemicals such as coagulants or flocculants and disinfection agents (e.g., polymers, alum, and sodium bisulfite) associated with the treatment upgrades and oil and lubricants at the proposed pump stations. Accidental release of the stored chemicals during use or storage could adversely affect the environment and/or the public. However, the chemicals that would be handled during project operation are not considered

acutely hazardous by the USEPA (40 CFR Part 355 Section 302 and 304). The chemicals would be stored in aboveground storage tanks with secondary containment, in accordance with federal, state, and local requirements and precautions would be taken to prevent and control any spills that may occur. The Member Agencies would comply with the provisions of California Code of Regulations, Title 8, Sections 5163 through 5167 for General Industry Safety Orders to protect the action area from being contaminated by the accidental release of any hazardous materials and/or wastes. The Member Agencies would contact the CUPA, local fire agency and the County Department of Public Health, Environmental Health Division for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling. Disposal of all hazardous materials would be in compliance with the applicable California hazardous waste disposal regulations. The Member Agencies would prepare or update their existing Hazardous Materials Business Plans and/or Emergency Response Plan to include any new chemicals that would be handled during project operation. Regulatory compliance and hazardous materials management practices would ensure a less than significant impact. Project operation would continue to take place in a controlled, industrial environment, and accidental exposure to hazardous materials would be minimized by compliance with applicable laws and regulations. There would be no new chemical storage or use associated with pipelines, therefore it is not discussed further.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Future baseline conditions (2020) for release of hazardous materials are assumed to be equivalent to current conditions.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.10-1, No Action**). A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

There would be no additional impacts as compared to those discussed above.

SVCSD

There would be no additional impacts as compared to those discussed above.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts associated with the release of hazardous materials during long-term operation of the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, the use and storage of chemicals during project operation would be slightly greater that that under No Action Alternative for LGVSD. The chemicals would be associated with the storage tanks and the treatment upgrades at the WWTP. However, the impact would be similar to that discussed under the general description above and would be less than significant.

Novato SD/NMWD

Under Phase 1, the impact associated with hazardous materials storage and use for Novato SD would be slightly greater than that discussed under No Action Alternative and similar to that discussed for LGVSD (under Phase 1). The impact would be less than significant.

SVCSD

Under Phase 1, the NBWRP would involve use of Aquashade dye for algae control at the SVCSD storage reservoirs, and petroleum fuel would be used to run the distribution pump stations (ESA, 2006). Regulatory compliance and standard practices to control any accidental release (discussed under LGVSD) would ensure a less-than-significant impact. The impact would be similar to that discussed above and would be less than significant. Under Phase 1, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

Under Phase 1, the impact associated with hazardous materials storage and use for Napa SD would be slightly greater than that discussed under No Action Alternative. Chemical use would be associated with treatment upgrades and would be similar to that discussed for Novato SD

above (under Phase 1). Regulatory compliance and standard practices to control any accidental release (discussed above) would ensure a less-than-significant impact.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts associated with the release of hazardous materials during long-term operation of the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

As no additional pump stations or storage are proposed within the LGVSD service area under the Basic System, the impacts would be similar to those discussed under Phase 1.

Novato SD/NMWD

Please refer to the discussion under LGVSD.

SVCSD

Under the Basic System, the chemical use could be slightly higher due to the operation of the additional pump stations and storage facilities. However, the impact would be similar to that discussed above.

Napa SD

Please refer to the discussion under SVCSD.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts associated with the release of hazardous materials during long-term operation of the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Partially Connected System, additional pump stations and storage facilities would be constructed within the LGVSD service area as compared to the Basic System. Potential impacts from accidental releases of hazardous materials during operation would be equivalent to the impacts discussed above.

Novato SD/NMWD

Under the Partially Connected System, additional treatment upgrades, pump stations and storage would be constructed within the Novato SD service area as compared to the Basic System. Potential impacts from accidental releases of hazardous materials during operation of facilities would be equivalent to the impacts discussed above.

SVCSD

Under the Partially Connected System, additional pump stations and storage would be constructed within the SVCSD service area as compared to the Basic System. Please refer to the discussion above. Under the Partially Connected System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

Under the Partially Connected System, additional pump stations and storage would be constructed within the Napa SD service area as compared to the Basic System. Please refer to the discussion above.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts associated with the release of hazardous materials during long-term facility operation under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Fully Connected System, the chemical use would be associated with the additional pump stations and slightly greater than that discussed under Phase 1. The impact would be similar to that discussed under Phase 1.

Novato SD/NMWD

Additional pumping capacity and storage are proposed within the Novato SD service area under the Fully Connected System. Please refer to the discussion under LGVSD.

SVCSD

Additional pumping capacity would be constructed within the SVCSD service area under the Fully Connected System. Please refer to the discussion under LGVSD. Under the Fully Connected System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

No additional pump capacity or storage is proposed within the Napa SD service area under the Fully Connected System. No impact is expected for Napa SD.

Impact 3.10.4: Wildland Fire Hazard. Construction activities in grassland areas could have the potential to expose people or equipment to risk of loss, injury, or death involving wildland fires. (Less than Significant with Mitigation)

Portions of the NBWRP are located in rural and agricultural land that may be susceptible to wildland fires. As discussed in the Setting, NBWRP would be mostly located outside the areas that are prone to wildland fires in the SVCSD and Napa SD service areas. In the case of the proposed components that would lie within areas with a wildland fire hazard (such as in the LGVSD and Novato SD service areas), construction activities could expose people or equipment to risk of loss, injury, or death involving wildland fires. Compliance with the local plans to reduce fire hazards would be required. In addition, implementation of Mitigation Measures, as described below, would reduce impacts to less-than-significant levels.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Future baseline conditions (2020) for wildland fire hazard are assumed to be equivalent to current conditions.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis(see **Chart 3.10-1, No Action**). A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

Under the No Action Alternative, project facilities would be constructed only within the North Service Area. As such, there is increased potential for a wildland fire hazard, which could be a significant impact when compared to the existing conditions. Implementation of **Mitigation Measures 3.10.4a** and **3.10.4b** described below would reduce this impact to a less-than-significant level.

SVCSD

Alignment 1A of the Sonoma Valley Recycled Water Project, as well as one of three alternatives for the Napa Salt Marsh Restoration Project would be constructed under the No Action Alternative. As compared to existing conditions, there is increased potential for a wildland fire hazard, which could be a significant impact. Implementation of **Mitigation Measures 3.10.4a** and **3.10.4b** described below would reduce this impact to a less-than-significant level.

Napa SD

The project components would be located outside the wildland fire hazard areas. No impact is expected.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The wildland fire hazards to proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would upgrade tertiary treatment capacity at the LGVSD WWTP and construct a new booster pump station; NMWD would install one of three pipeline options, described in **Chapter 2, Project Description**, which would connect the LGVSD WWT Recycled Water Treatment Facility to facilities constructed by NMWD. Under Phase 1, the proposed pipeline route for the Coast Guard Housing Distribution Loop is located predominantly along existing roadways. The pipeline routes for Options A, B, and C are proposed primarily through open, undeveloped grazing land. The new pump station would be located at the existing LGVSD WWTP. There is greater potential for impacts from wildfire hazards in rural and open space areas located along the pipeline option corridors, which could be a significant impact. Therefore,

Mitigation Measures 3.10.4a and **3.10.4b** would be required to reduce the level of impact to less-than-significant.

Novato SD/NMWD

The impact would be similar to that discussed under LGVSD. Refer to discussion above.

SVCSD

The additional proposed components would not be located within areas that are prone to wildland fires. No additional impact is expected.

Napa SD

The proposed components would not be located within areas that are prone to wildland fires. No impact is expected.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The wildland fire hazards to proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

No additional pipelines or pump stations are proposed within the LGVSD service area under the Basic System, so impacts would be the same as under Phase 1.

Novato SD/NMWD

Additional new pipelines would be constructed in the Novato SD service area under the Basic System. Construction activities along the proposed pipeline corridor in rural and open space areas could expose public or workers to wildfire hazards, which could be a significant impact. Implementation of located along the**, Mitigation Measures 3.10.4a** and **3.10.4b** would reduce the level of impact to less-than-significant.

SVCSD

The additional proposed components would not be located within areas that are prone to wildland fires. No additional impact is expected.

Napa SD

The proposed components would not be located within areas that are prone to wildland fires. No impact is expected.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The wildland fire hazards to proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Partially Connected System, additional pipelines and pump stations would be constructed in areas that may be prone to wildfires. The impact would be similar to but slightly greater than the impact discussed under the Basic System. Implementation of **Mitigation Measures 3.10.4a** and **3.10.4b** during construction of the Partially Connected System would reduce the impact to a less-than-significant level.

Novato SD/NMWD

Under the Partially Connected System, additional pipelines and pump stations would be constructed in areas that may be prone to wildfires. Please refer to discussion under LGVSD.

SVCSD

The additional proposed components would not be located within areas that are prone to wildland fires. No impact is expected.

Napa SD

The proposed components would not be located within areas that are prone to wildland fires. No impact is expected.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The wildland fire hazards under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Additional pump stations would be constructed In the LGVSD service area under the Fully Connected System. The impact would be similar but slightly greater than that discussed under the Partially Connected System. Implementation of **Mitigation Measures 3.10.4a** and **3.10.4b** during construction of the Fully Connected System would reduce the impact to a less-than-significant level.

Novato SD/NMWD

Additional pipelines and pumping capacity would be constructed in the Novato SD service area, under the Fully Connected System. The impact would be similar but slightly greater than that discussed under the Partially Connected System. Implementation of **Mitigation Measures 3.10.4a** and **3.10.4b** during construction of the Fully Connected System would reduce the impact to a less-than-significant level.

SVCSD

The additional proposed components would not be located within areas that are prone to wildland fires. No additional impact is expected.

Napa SD

The proposed components would not be located within areas that are prone to wildland fires. No impact is expected.

Mitigation Measures

Mitigation Measure 3.10.4a: For applicable Member Agencies, in consultation with local fire agencies, a Fire Safety Plan will be developed for each of the service areas associated with the project. The Fire Safety Plan(s) will describe various potential scenarios and action plans in the event of a fire.

Mitigation Measure 3.10.4b: For applicable Member Agencies, during project construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. All vehicles and crews working at the project site(s) will have access to functional fire extinguishers at all times. In addition, construction crews will be required to have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.

Impact Significance with Mitigation: Less than Significant

3.10.4 Impact Summary by Service Area

Table 3.10-6 provides a summary of potential project impacts related to hazardous materials.

TABLE 3.10-6
POTENTIAL IMPACTS AND SIGNIFICANCE – HAZARDS AND HAZARDOUS MATERIALS

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
Impact 3.10.1: Exposure to Hazardous Materials During Construction				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1	LSM	LSM	LSM	LSM
Alternative 2	LSM	LSM	LSM	LSM
Alternative 3	LSM	LSM	LSM	LSM
Impact 3.10.2: Accidental Release of Hazardous Materials During Construction				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1	LSM	LSM	LSM	LSM
Alternative 2	LSM	LSM	LSM	LSM
Alternative 3	LSM	LSM	LSM	LSM
Impact 3.10.3: Accidental Release of Hazardous Materials During Long-term Operation				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	LTS	LTS	LTS	LTS
Alternative 1	LTS	LTS	LTS	LTS
Alternative 2	LTS	LTS	LTS	LTS
Alternative 3	LTS	LTS	LTS	LTS
Impact 3.10.4: Wildland Fire Hazard				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	NI
Alternative 1	LSM	LSM	LSM	NI
Alternative 2	LSM	LSM	LSM	NI
Alternative 3	LSM	LSM	LSM	NI

NI = No Impact
LTS = Less than Significant impact, no mitigation required
LSM = Less than Significant with Mitigation

3.10.5 References

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3.11 Public Services and Utilities

This section describes the existing public services and utilities in the action area. This section provides the regulatory framework that would be applicable to the project and describes the potential impacts to public services and utilities resulting from the North Bay Water Recycling Program (NBWRP). The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

3.11.1 Affected Environment/Setting

LGVSD

City of San Rafael

Public Services

Police Protection. The City of San Rafael Police Department, which is headquartered at 1400 Fifth Avenue in San Rafael, provides police protection in the action area. In its current configuration, the Chief of Police directs a staff of 75 sworn and 36 non-sworn employees. The uniformed Patrol Bureau provides uniformed police services 24 hours a day. The bureau is divided equally into two sub-units, Footbeat Unit and a Directed Patrol Unit, of approximately twenty members, managed by Police Lieutenants (City of San Rafael, 2008).

Fire Protection. Please refer to the fire protection services for unincorporated Marin County below.

Emergency Medical Services (EMS). Please refer to the EMS program for unincorporated Marin County below.

Medical Facilities. Please refer to the medical facilities for unincorporated Marin County below.

Schools and Parks. The San Rafael City School and Dixie School Districts oversee public schools in the action area. The schools closest to the action area in the San Rafael City School District are listed below; all of which have students in grades Kindergarten (K) through fifth (K-5), with the exception of Venetia Valley school, which has students in grades K-8:

- Venetia Valley (formerly Gallinas) School (177 North San Pedro Road)
- Glenwood Elementary (25 West Castlewood Drive)
- Bahia Vista Elementary (125 Bahia Way)
- Coleman Elementary (800 Belle Avenue)
- Laurel Dell Elementary (225 Woodland Avenue)
- Sun Valley Elementary (75 Happy Lane)

The schools closest to the action area in the Dixie School District are listed below:

- Dixie Elementary School (177 North San Pedro Road)
- Mary E. Silveira Elementary School (375 Blackstone Drive)
- Vallecito School (50 Nova Albion Way)

Dixie School District students attend Miller Creek Middle School, which is located just outside the city limits of San Rafael. City of San Rafael School District students attend Davidson Middle School, located in the central section of San Rafael. Students attending Bahia Vista, Coleman, Glenwood, Laurel Dell, San Pedro and Sun Valley Elementary Schools continue to Davidson Middle School. Students from Davidson and Miller Creek continue to San Rafael High (185 Mission Avenue) or Terra Linda High (320 Nova Albion Way). Dominican University (50 Acacia Avenue) is also located within the San Rafael city limits (City of San Rafael, 2008).

The City of San Rafael provides parks and recreational services to residents and businesses of the City. A detailed discussion of recreation facilities in the vicinity of NBWRP is provided in **Section 3.13, *Recreation*.**

Libraries. The City of San Rafael is a member of the Marin County Library System that serves the unincorporated parts of Marin County and participating cities. There are eleven participating library locations in this system. The libraries closest to the action area are the Marin County Civic Center Library at (3501 Civic Center Drive), the Picklewood Library (50 Canal St), and main City of San Rafael Library (1100 E St), all located in San Rafael (City of San Rafael, 2008).

Utilities

Water. Marin Municipal Water District (MMWD) provides potable water in the action area. The primary source of water for MMWD is rainfall stored in two of the area reservoirs. MMWD also maintains a line intertie with the North Marin Water District for Russian River water. Seventy-two percent of the water used within the MMWD is from local reservoirs, 26 percent is from the Russian River in Sonoma County via SCWA, and two percent is from recycled water (MMWD, 2008).

Sewer. Please refer to the sewer service under the unincorporated Marin County below.

Solid Waste Processing and Disposal Facilities. Please refer to the solid waste facilities under the unincorporated Marin County below.

Hazardous Waste Facilities. Please refer to the hazardous waste facilities under the unincorporated Marin County below.

Electricity. Pacific Gas and Electric Company (PG&E) provides electricity and natural gas to businesses and residences in the city of San Rafael. PG&E is responsible for maintaining the physical infrastructure for gas and electrical distribution. The majority of San Rafael's power comes from the substation on Second St. near Lindaro, which is a significant component of the major grid system for Marin County (City of Rafael, 2004).

Marin County

Public Services

Police Protection. The Marin County Sherriff's Department, which is headquartered at 3501 Civic Center Drive in San Rafael, provides police protection for the action area. Three substations of the department provide service to the southern Marin, Kentfield, and Point Reyes regions of unincorporated areas of the county. The Marin County Sherriff Department has approximately 207 sworn deputies and 114 law enforcement professionals. The Marin County Sheriff's Office is divided into three major bureaus: Administrative and Support Services, Detention Services, and Field Services in addition to operating the countywide Major Crime Task Force (Tamborski, 2008).

The Marin State Park District provides police protection in the China Camp State Park. The Marin State Park District has three rangers that reside onsite and a total of 12 rangers within the Marin County area that are able to respond to emergency situations. Marin County Sheriff would response if additional assistance is needed (Larr, 2008).

Fire Protection. The San Rafael Fire Department, which is headquartered at 1039 C. Street in San Rafael, provides fire protection to homes and businesses in areas of NBWRP. The department currently employs approximately 80 personnel and operates seven engines, two truck companies, and two paramedic trucks throughout its six stations. Two stations that would respond first to incidents in the action area are Station 5 at 955 Point San Pedro Road and Fire Station 7 at 3530 Civic Center Drive, both in San Rafael. These two stations are staffed with three to five firefighters and provide response times between three and eight minutes in the Action area (Heine, 2008).

Emergency Medical Services. The Marin County Emergency Medical Services program is responsible for the planning, implementation and evaluation of the EMS system established to provide pre-hospital services. The Paramedic Zone B Provider Agency, San Rafael Fire Department, provides emergency medical service to the action area. When required, two private ambulance providers, American Medical Response and St. Joseph Ambulance Service, provide transportation to Marin General Hospital in Greenbrae, which is the County's trauma center (Marin County, 2008).

Medical Facilities. The closest medical facilities to the action area are the Kaiser Hospital San Rafael and the Marin General Hospital. The Kaiser Hospital San Rafael is located at 99 Montecillo Road in San Rafael. This medical center provides emergency and urgent care as well non-emergency medical services (Kaiser Permanente, 2008).The Marin General Hospital is located at 250 Bon Air Road in Greenbrae. It is a Sutter Healthcare affiliate and offers emergency and non-emergency medical services (Marin General Hospital, 2008).

Schools and Parks. Schools located in Marin County are in the cities of San Rafael and Novato (see below for detailed information). Marin County provides park and recreational services to residents of Marin County. A detailed discussion of recreation facilities in the vicinity of NBWRP is provided in **Section 3.13, Recreation**.

Libraries. Marin County has a Free Library System that serves the unincorporated parts of Marin County and participating cities. There are eleven participating library locations in this system. The location closest to the action area is the Civic Center Library at 3501 Civic Center Drive in San Rafael (Marin County, 2008).

Utilities

Water. Marin County's water supplies include surface water, groundwater, recycled water and imported water. Surface water is the main source for urban areas in the eastern portion of the county while groundwater is the primary supply for unincorporated areas. Imported water is from the Sonoma County Water Agency (SCWA). SCWA direct customers are eight cities and special districts in Sonoma and northern Marin counties (Marin County, 2007). Marin Municipal Water District (MMWD) provides potable water in the action area. MMWD obtains 75 percent of the water consumed annually from rainfall collected in six area reservoirs in Marin. Five of the reservoirs are on the Mount Tamalpais Watershed and the other two are located in West Marin. The remaining 25 percent of the water comes from the Russian River in Sonoma County under a contract with SCWA (MMWD, 2008).

Sewer. Wastewater treatment services in the action area are provided by the Las Gallinas Valley Sanitary District (LGVSD) and the San Rafael Sanitation District (SR Sanitation District). The LGVSD provides services to Marinwood, Lucas Valley, Terra Linda, Santa Venetia, Los Ranchitos and Smith Ranch Road areas. The SR Sanitation District provides services to Central San Rafael south of Puerto Suello Hill and some neighboring unincorporated areas (i.e., Peacock Gap Country Club area).

LGVSD provides sewer collection, treatment and disposal; wastewater recycling via joint venture with MMWD; garbage and refuse collections and disposal via franchise (Marin Sanitary Service, 2008). The LGVSD provides these services to approximately 30,000 residents and the treatment plant, located at 300 Smith Ranch Road in San Rafael, employs 16 full-time personnel. The San Rafael Sanitation District provides pump station and collection system maintenance to its service area and employs 11 full time personnel (LGVSD, 2008).

Solid Waste Processing and Disposal Facilities. The Marin Sanitary Service provides weekly garbage and recycling collection services to residential and commercial customers. They currently service more than 32,000 residential and commercial accounts.

Hazardous Waste Facilities. The Marin Recycling Center operates a household hazardous waste facility as a joint program with the City of San Rafael and the Marin County Waste Management Joint Powers Authority. The Household Hazardous Waste Facility is located at: 565 Jacoby Street in San Rafael. The facility disposes of household hazardous waste from residents of Marin County, with the exception of Novato. It also disposes small quantities of hazardous waste from businesses for a fee (Marin Sanitary Service, 2008).

Electricity. PG&E provides electricity to businesses and residences in Marin County.

Novato SD

City of Novato

Public Services

Police Protection. The Novato Police Department headquartered at 909 Machin Avenue in Novato provides police protection in the action area. The Novato Police Department operates a Patrol Bureau of two platoons and 7 squads. Each platoon reports to one lieutenant. The first platoon consists of 4 squads, 3 sergeants and 17 officers. The second platoon consists of 3 squads, 3 sergeants and 16 officers. The City of Novato is divided into four beats (geographical sections); Beat 1, Beat 2, Beat 3 and Beat 4; however, the patrol officers regularly cross the boundaries from one area to the other. The action area spans all four beats (City of Novato, 2008).

Fire Prevention and Protection. The Novato Fire Protection Department (NFPD) provides fire protection services to homes and businesses in the action area. NFPD's Emergency Response Section is made up of three divisions: Training, EMS, and Operations. The Operations Division is comprised of the emergency response personnel and equipment. The daily emergency response staffing for the entire fire district is 20 personnel, which include one battalion chief, four 3-person engine companies, one 3-person truck company and two 2-person paramedic ambulances. There are five stations located in the city. Stations located closest to the action area are Fire Station 1 (7025 Redwood Boulevard), Fire Station 2 (450 Atherton Avenue), Fire Station 3 (65 San Ramon Way.), Fire Station 4 (319 Enfrente Drive), and Fire Station 5 (5 Bolling Drive) (Novato Fire Protection District, 2008).

Emergency Medical Services. Please refer to the EMS program under the unincorporated Marin County above.

Medical Facilities. The closest medical facilities to the action area are the Novato Community Hospital in Novato, Kaiser Hospital San Rafael, and the Marin General Hospital. The Novato Community Hospital is located at 180 Rowland Way in Novato. This medical center is a Sutter Healthcare affiliate and provides non-emergency medical service (Novato Community Hospital, 2008). The Kaiser Hospital San Rafael and Marin General Hospital are discussed in the medical facilities section under unincorporated Marin County.

Schools and Parks. The Novato City School District oversees public schools in the action area. The schools closest to the action area are listed below, all of which have students in grades Kindergarten (K) through 5 (K-5):

- Hamilton Elementary School (One Main Gate Road)
- Loma Verde Elementary School (399 Alameda de la Loma)
- Lu Suttion Elementary School (1800 Center Road)
- Lynwood Elementary School (1320 Lynnwood Dr.)
- Olive Elementary School (629 Plum Street)
- Pleasant Valley Elementary School (755 Sutro Avenue)

- Rancho Elementary School (1430 Johnson St.)
- San Ramon Elementary School (45 San Ramon Way)

The City of Novato has three sixth- through eighth-grade middle schools: Hill Middle School (720 Diablo Avenue), San Jose Middle School (1000 Sunset Parkway), and Sinaloa Middle School (2045 Vineyard Way). Students from the middle schools continue to Novato High School (625 Arthur Street) or San Marin High School (15 San Marin Drive) (City of Novato, 2008).

The City of Novato provides parks and recreational services to residents and businesses of the City. A detailed discussion of recreation facilities in the vicinity of NBWRP is provided in **Section 3.13, Recreation**.

Libraries. The City of Novato is a member of the Marin County Library System that serves the unincorporated parts of Marin County and participating cities. There are eleven participating library locations in this system. The location closest to the action area is Novato Library at 1720 Novato Boulevard. in Novato (Marin County, 2008).

Utilities

Water. The North Marin Water District (NMWD) supplies Novato with potable water. The NMWD purchases approximately 80% of its supply from SCWA. SCWA water is collected 60 to 80 feet below the gravel beds adjacent to the Russian River and transported water to NMWD via the North Marin Aqueduct. NMWD has an agreement with SCWA that provides an annual entitlement of 14,100 acre-feet (4 billion gallons) of Russian River water. NMWD also receives a small amount of its supply from Stafford Lake, a reservoir on Novato Creek west of the City. MMWD receives its water from reservoirs on Lagunitas Creek in central Marin County, two other reservoirs, and from the Russian River. (Novato General Plan, 1996).

Sewer. Novato SD is responsible for treatment of wastewater in the City of Novato. Wastewater is treated at the newly constructed Recycled Water Facility, located adjacent to Highway 37. The 500,000-gallon-per-day-treatment facility provides irrigation water to the Stone Tree Golf Course in Novato (Novato SD, 2008).

Solid Waste Processing and Disposal Facilities. Novato Disposal Service is the franchise collector for the Novato SD and provides recycling and greenwaste collection to residential and commercial accounts in the Novato (Novato SD, 2008).

Hazardous Waste Facilities. The Novato SD and the City of Novato operate a permanent drop-off facility for household and small business hazardous waste (Novato Sanitary District, 2008).

Electricity. PG&E provides electricity to businesses and residences in the City of Novato.

Marin County

Please refer to the discussion under LGVSD above.

SVCSD

City of Sonoma

Public Services

Police Protection. The City of Sonoma Police Department, headquartered at 32 Patten Street in Sonoma, and the Sonoma County Sheriff's Department, headquartered at 2796 Ventura Avenue in Santa Rosa, provide police protection in the Action area. The City of Sonoma Department is staffed by two Sergeants, nine deputies, a School Resource Officer, a Traffic Officer, two Community Service Officers and two administrative positions. The station closest to the action area is headquarters (32 Patten Street) (City of Sonoma, 2008).

In 2004, the City of Sonoma contracted with the Sonoma County Sheriff's Department to provide law enforcement services. Please refer to the police protection section for unincorporated Sonoma County below for additional information.

Fire Prevention and Protection. Please refer to the fire protection services for unincorporated Sonoma County below.

Emergency Medical Services. Please refer to the emergency medical services for unincorporated Sonoma County below.

Medical Facilities. Please refer to the medical facilities for unincorporated Sonoma County below.

Schools and Parks. The Sonoma Valley Unified School District oversees public schools in the action area. The schools closest to the action area are listed below; all of which have students in grades K-5, with the exception of El Verano, which has K-8:

- El Verano Elementary School (18606 Riverside Drive)
- Prestwood Elementary (343 Mac Arthur Street)
- Sassarini Elementary (652 Fifth Street West)
- Coleman Elementary (800 Belle Avenue)
- Laurel Dell Elementary (225 Woodland Avenue)

Students in the Sonoma Valley Unified School District attend Adele Harrison Middle School (1150 Broadway) or Altimira Middle School (17805 Arnold Drive), which are both sixth- through eighth- grade schools. Students from Adele Harrison and Altimira continue to Sonoma Valley High (20000 Broadway) (Sonoma Valley Unified School District, 2008).

The City of Sonoma provides parks and recreational services to residents and businesses of the City. A detailed discussion of recreation facilities in the vicinity of NBWRP is provided in **Section 3.13, Recreation**.

Libraries. The City of Sonoma is a member of the Sonoma County Library System that serves the unincorporated parts of Sonoma County and participating cities. The Sonoma County library is headquartered at Third & E Streets in Santa Rosa and has 13 branch locations. The library location closest to the action area is the Sonoma Valley branch, located at 755 West Napa St. in Sonoma (Sonoma County, 2008).

Utilities

Water. Water services are provided by the Valley of the Moon Water District (VOMWD) Division 12, and the City of Sonoma. Both of the providers obtain water from the SCWA via the Sonoma aqueduct. VOMWD serves approximately 7,200 acres and a population of 23,000. VOMWD purchases approximately 90 percent of its water from SCWA and the remaining 10 percent from municipal wells used primarily during the summer months. The City of Sonoma serves the action area with water from SCWA and three municipal wells. The wells have a total pumping capacity of 1.1 million gallons per day (mgd), but because the water quality of the wells is significantly lower than that of SCWA, the wells are used only as a backup supply (ESA, 2006).

Sewer. SCWA assumed management responsibilities for the County of Sonoma Sanitation Districts and Zones on January 1, 1995 from the County of Sonoma Department of Public Works. The Action area is in the Sonoma Valley County Sanitation District (SVCSD) and provides wastewater treatment, reclamation and disposal within the action area. The SVCSD service area covers approximately 4500 acres and includes approximately 118 miles of collection system pipelines. The SVCSD WWTP has an average dry weather flow of 2.6 million gallons a day.

Solid Waste Processing and Disposal Facilities. The Sonoma County Waste Management Agency provides recycling, garbage, and yard waste collection services in the Action area. The Sonoma Transfer Station (4376 Stage Gulch Road) provides a disposal site in the action area (Sonoma County Waste Management Agency, 2008).

Hazardous Waste Facilities. The Sonoma County Waste Management Agency, comprised of nine cities within Sonoma County, including the City of Sonoma, provides disposal of hazardous waste in the action area. The Sonoma Transfer Station (4376 Stage Gulch Rd.) is the closest hazardous materials site to the action area.

Electricity. PG&E provides electricity to businesses and residences in the City of Sonoma.

Sonoma County

Public Services

Police Protection. The Sonoma County Sheriff's Department headquartered at 2796 Ventura Avenue in Santa Rosa provides police protection to the action area. The Sonoma County Sheriff's Department is responsible for primary law enforcement services of the unincorporated area of Sonoma County and the cities of Windsor and Sonoma. These law enforcement services are provided by the 275 Deputy Sheriffs in the Patrol Bureau, Investigations Bureau, Court Security

and Transportation Bureaus. The Department has four substations and two detention facilities. The substation closest to NBWRP is the Sonoma Valley Sub-Station located at 810 Grove Street in Sonoma (Sonoma County, 2008).

Fire Prevention and Protection. The Sonoma Valley Fire and Rescue Authority (SVFRA), headquartered at 630 2nd Street West in the City of Sonoma, provides fire protection and pre-hospital medical services in the action area. The SVFRA consists of a Fire Chief, four division chiefs, 11 captains, 14 engineers, 35 part-time firefighters, 6 full-time EMS employees, 30 part time EMS employees, four clerical staff, and approximately 30 volunteer firefighters. Many of the employees are Paramedic- trained. The stations closest to the action area are Station 1 (630 2nd Street West) and Station 2 (877 Center Street El Verano). The response times vary between 3 to 5 minutes in the action area (Ayers, 2008).

Emergency Medical Services. The Sonoma Valley Fire and Rescue Authority is the sole emergency medical service provider in the action area. The Authority provides transportation to the Sonoma Valley hospital (347 Andrieux Street, Sonoma), Queen of the Valley Medical Center (1000 Trancas Street, Napa) and Santa Rosa Memorial Hospital (1165 Montgomery Drive, Santa Rosa); the latter two have trauma centers. When required, one private ambulance provider, Vera Ambulance Service, provides private transfers to/from hospital locations (Ayers, 2008).

Medical Facilities. The closest medical facilities to the action area are Sonoma Valley Hospital (347 Andrieux Street, Sonoma), the Queen of the Valley Medical Center (1000 Trancas Street, Napa) and the Santa Rosa Memorial Hospital (1165 Montgomery Drive, Santa Rosa). The Sonoma Valley Hospital is a non-profit district hospital with a publicly elected five-member Board of Directors. This medical center provides emergency and urgent care as well non-emergency medical services (Sonoma Valley Hospital, 2008).

The Queen of the Valley Medical Center and Santa Rosa Memorial Hospital are St. John Healthcare affiliates and offer emergency and non-emergency medical services (Queen of the Valley Hospital, 2008). The Santa Rosa Memorial Hospital is the designated trauma center for the Action area (Santa Rosa Memorial, 2008).

Schools and Parks. The Sonoma Valley Unified School District oversees public schools in the action area. The schools closest to the action area are listed below; all of which have students in grades K-5, with the exception of El Verano, which has K-8:

- El Verano Elementary School (18606 Riverside Drive)
- Prestwood Elementary (343 Mac Arthur Street)
- Sassarini Elementary (652 Fifth Street West)
- Coleman Elementary (800 Belle Avenue)
- Laurel Dell Elementary (225 Woodland Avenue)

Students in the Sonoma Valley Unified School District attend Adele Harrison Middle School (1150 Broadway) or Altimira Middle School (17805 Arnold Drive), which are both sixth- through

eighth- grade schools. Students from Adele Harrison and Altimira continue to Sonoma Valley High (20000 Broadway) (Sonoma Valley Unified School District, 2008).

Sonoma County provides park and recreational services to residents of Sonoma County. A detailed discussion of recreation facilities in the vicinity of the NBWRP is provided in **Section 3.13, Recreation.**

Libraries. The Sonoma County library is headquartered at Third and E Streets in Santa Rosa and has 13 branch locations. The library location closest to the action area is the Sonoma Valley branch located at 755 West Napa Street in Sonoma.

Utilities

Water. Potable, commercial, industrial and agricultural water supplies in Sonoma County are derived from a number of sources, including surface water, groundwater, and recycled water. Surface water sources are primarily used in the incorporated areas (cities) and are supplemented by groundwater. Residences in rural areas in the county tend to rely more on groundwater sources.

Sewer. The SVCSD WWTP provides treatment for the sewage collected in its 4,500-acre service area in and around city of Sonoma. The WWTP has an average dry weather flow capacity of 2.6 million gallons a day (SCWA, 2009).

Solid Waste Processing and Disposal Facilities. Sonoma County Waste Management Agency provides recycling, garbage, and yard waste collection services in the action area. The Sonoma Transfer Station (4376 Stage Gulch Road) provides a designated disposal site in the action area (Sonoma County Waste Management Agency, 2008).

Hazardous Waste Facilities. The Department of Emergency Services, Hazardous Materials (Haz Mat) Division is responsible for the enforcement of the regulatory-based Hazardous Materials Programs in Sonoma County. The Sonoma County Waste Management Agency, comprising of nine cities in the county and the County of Sonoma, provides disposal of Hazardous Waste in the action area. The Sonoma Transfer Station (4376 Stage Gulch Rd.) is the closest hazardous materials site to the Action area (Sonoma County, 2008).

Electricity. PG&E provides electricity to the majority of businesses and residences in Sonoma County (Sonoma County, 2006).

Napa SD

City of Napa

Public Services

Police Protection. The Napa Police Department, which is headquartered at 1539 1st Street in Napa, provides police protection to the Action area. The primary responsibility of the Napa Police Department is to work in partnership with the community to promote and maintain a peaceful,

safe and secure environment. The Napa Police Department is organized within six bureaus: Administration, Patrol, Crime Prevention/Youth Services, Investigations, and Central Dispatch. Each bureau has a Police Commander in charge of its overall operation (City of Napa, 2008).

Fire Prevention and Protection. The Napa City Fire Department, headquartered at 1539 1st Street in Napa, provides fire and first response medical care to the action area. The Napa City Fire Department has four fire stations covering 18 square miles within the City limits of Napa. Each station provides an Advanced Life Support (Paramedic) Engine company staffed with a minimum of three personnel. In addition, Fire Station One provides a Ladder Truck Company capable of specialized operations and heavy rescue. The department staffing consists of 56 suppression, six fire prevention and four administration personnel. The annual call volume is about 6,000 responses per year, of which 85% are medical in nature. The Napa City Fire Department participates in a multi-agency Hazardous Materials Response Team and maintains a Swift Water Rescue Team with two inflatable rescue boats. The Napa City Fire Department also works closely with CAL FIRE, (the California Department of Forestry and Fire Protection or CDF)/ Napa County Fire Department and maintains a mutual aid agreement with that agency as well as with the cities of American Canyon and Vallejo. Station locations closest to the Action area are Station 4 (251 Gasser Ave) and Station 1 (930 Seminary Street) (City of Napa, 2008).

Emergency Medical Services. Please refer to the emergency medical services for unincorporated Napa County below.

Medical Facilities. Please refer to the medical facilities for unincorporated Napa County below.

Schools and Parks. The Napa Unified School District oversees public schools in the action area. The schools closest to the action area are listed below; all of which have students in grades K-5, with the exception of Mount George Elementary, which has students K-8:

- Mount George Elementary (1019 2nd Avenue)
- Alta Height Elementary (15 Montecito Boulevard)
- Carnero Elementary (1680 Los Carneros Avenue)
- Vichy Elementary (3261 Vichy Avenue)

Students in the Napa School District attend Redwood Middle School (3600 Oxford Street), Harvest Middle School (2449 Old Sonoma Road), Silverado Middle School (1133 Coombsville Road), which are sixth- through eighth-grade schools located in the City of Napa and Napa County. Students from Redwood, Harvest, and Silverado continue to Napa High School (2475 Jefferson Street), or Vintage High School (1375 Trower Street). There are also two alternative high schools Technology High School (920 Yount Street) and Valley Oaks High School (1600 Myrtle Avenue). Napa Valley Community College is also located in the City of Napa in Napa County (Napa Unified School District, 2008).

The City of Napa provides parks and recreational services to residents and businesses of the City. A detailed discussion of recreation facilities in the vicinity of the NBWRP is provided in **Section 3.13, Recreation.**

Libraries. The City of Napa is a member of the Napa City-County Library System which serves the unincorporated parts of Napa County and participating cities: American Canyon, Napa, Calistoga, and Yountville. The Napa City-County library is headquartered at 580 Coombs Street, Napa and has four branch locations. The library location closest to the Action area is the City of Napa headquarters location (Napa County, 2008)

Utilities

Water. City of Napa's primary water source is surface water which is drawn from three sources: Lake Hennessey, Milliken Reservoir, and the State Water Project (SWP). Napa's water rights to Lake Hennessey authorize the City to divert and store up to 30,500 acre-feet of water annually from Conn, Sage and Chiles Creeks for beneficial use. Napa's water rights to Milliken Reservoir authorize the City to divert and store up to 2,350 acre-feet of water annually from Milliken Creek, a tributary of the Napa River, for beneficial use. The City of Napa's Water Division (NWD) is responsible for providing a reliable supply of water safe for consumption and other domestic, industrial and commercial uses. The NWD's policy is to provide water on a demand-response basis and to plan for a water system that will meet the city's long-term growth needs.

Sewer. Napa provides treatment of raw water at three water treatment plants (WTP): Hennessey, Milliken, and Jameson Canyon. The Hennessey WTP was constructed in 1981 and has a treatment capacity of 20 MGD. The Milliken WTP was constructed in 1976 and has a treatment capacity of 4 MGD. The Jamieson Canyon WTP was constructed in 1986 and has a treatment capacity of 12 MGD. The City of Napa is currently designing an expansion of the Jamieson Canyon WTP to provide a maximum capacity of 24 MGD.

Solid Waste Processing and Disposal Facilities. Please refer to Solid Waste Processing and Disposal under Utilities for unincorporated Napa County below.

Hazardous Waste Facilities. Please refer to Hazardous Waste Facilities under Utilities for unincorporated Napa County below.

Electricity. PG&E provides electricity to businesses and residences in the City of Napa. The City is fed from four electric substations as follows: 1) Tulocay Sub, south of Napa on Highway 221; 2) Basalt Sub, south of Napa on Highway 221 and north of Tulocay Sub; 3) Napa Sub, 300 Burnall Street, near the Napa fairgrounds; and 4) Pueblo Sub on Big Ranch Road, north of Napa.

Napa County

Public Services

Police Protection. The Napa County Sheriff's Department is headquartered at 1535 Airport Boulevard in Napa and provides police protection to the Action area. The Department is

responsible for primary law enforcement services of the unincorporated area of Napa County and the cities of American Canyon and Yountville. These law enforcement services are provided by the over 135 Deputy Sheriffs in the Administrative, Patrol, Investigations, Civil and Coroner Divisions. The Department has five regional offices. The station closest to the action area is the Department headquarters in Napa (Napa County, 2008).

Fire Prevention and Protection. The Napa County Fire Department contracts with the California Department of Forestry (CDF) for fire protection services including administrative coordination with nine volunteer fire departments operating under a County Fire Plan and supported by Napa County. The CDF Sonoma-Lake-Napa Unit Chief serves as the County's Fire Chief and is responsible for the direction and coordination of fire protection services by these agencies on a county-wide basis. The County also contracts with the Cities of St. Helena and Calistoga, the Napa State Hospital and Schell-Vista Fire Protection District for the provision of fire protection services to specified unincorporated areas adjoining these agencies. The Department provides dispatching for the American Canyon Fire Protection District and Napa State Hospital Fire Department (Napa County, 2008).

Emergency Medical Services. The Napa County Fire Department is the sole EMS provider in the action area. The Department's trucks and engines are all emergency service equipped. The Department provides transportation to Queen of the Valley Medical Center (1000 Trancas Street, Napa) which has a trauma center (Napa County, 2008).

Medical Facilities. The closest medical facilities to the action area are Queen of the Valley Medical Center (1000 Trancas Street, Napa) and the Sonoma Valley Hospital (347 Andrieux Street, Sonoma). The Queen of the Valley Medical Center is a St. John Healthcare affiliate and offers emergency and non-emergency medical services (Queen of the Valley Hospital, 2008). The Sonoma Valley Hospital is a non-profit district hospital with a publicly elected five-member Board of Directors. This medical center provides emergency and urgent care as well non-emergency medical services (Sonoma Valley Hospital, 2008).

Schools and Parks. The Napa Unified School District oversees public schools in the action area. The schools closest to the action area are listed below; all of which have students in grades K-5, with the exception of Mount George Elementary which has students K- 8:

- Mount George Elementary (1019 2nd Avenue)
- Silverado Middle School (1133 Coombsville Road)
- Wintun School (74 Wintun Ct, off Imola Avenue)
- Alta Height Elementary (15 Montecito Boulevard)
- Carnero Elementary (1680 Los Carneros Avenue)
- Vichy Elementary (3261 Vichy Avenue)

Napa School District students attend Redwood Middle School (3600 Oxford Street), Harvest Middle School (2449 Old Sonoma Road), Silverado Middle School (1133 Coombsville Road), which are sixth- through eighth-grade schools located in the City of Napa and Napa County.

Students from Redwood, Harvest, and Silverado continue to Napa High School (2475 Jefferson Street), or Vintage High School (1375 Trower Street). There are two alternative high schools Technology High School (920 Yount Street) and Valley Oaks High School (1600 Myrtle Avenue). Napa Valley Community College is also located in the City of Napa in Napa County (Napa Unified School District, 2008).

Marin County provides park and recreational services to residents of Marin County. A detailed discussion of recreation facilities in the vicinity of NBWRP is provided in **Section 3.13, Recreation**.

Libraries. The Napa City-County Library System which serves the unincorporated parts of Napa County and participating cities: American Canyon, Napa, Calistoga, and Yountville. The Napa City-County library is headquartered at 580 Coombs Street, Napa and has four branch locations. The library location closest to the action area is the City of Napa headquarters location (Napa County, 2008).

Utilities

Water. Groundwater is the primary source of water in unincorporated Napa County. The largest source of groundwater for the Action area is the North Napa Valley Basin, Milliken-Sarco-Tulocay (MST) Subbasin. The Napa County Public Works Water Division is responsible for the operation, maintenance, and improvement of the municipal water system serving the Action area. The Water Division is dedicated to providing a safe and reliable supply of high-quality drinking water that meets all State and Federal Health Standards for the City of Napa. The Water Division's three treatment plants transform raw source water into clean and safe drinking water residential, commercial, industrial, and institutional customers (Napa County, 2008).

Sewer. Napa SD, located in the Napa Valley, provides wastewater collection, treatment and disposal services to the residents and businesses in the City of Napa and surrounding unincorporated areas of Napa County. Through a network of approximately 250 miles of underground sewer pipelines, assisted by a system of six lift stations, the sewage makes its way to the Napa SD WWTP for treatment. The WWTP is a secondary and tertiary biological physical-chemical treatment facility that treats a mixture of domestic and industrial wastewater. Napa SD has completed upgrades to the WWTP, which include primary treatment, activated sludge facilities, and sludge digestion and solids de-watering facilities. The facility has a dry weather treatment design capacity of 15.4 million gallons per day (Napa Sanitation District, 2008).

Solid Waste Processing and Disposal Facilities. Napa Recycling & Waste Services/Napa County Recycling & Waste Services provides recycling, garbage, and yard waste collection services in the action area.

Hazardous Waste Facilities. Napa-Vallejo Recycle and Reuse Facility and the Napa-Vallejo Household Hazardous Waste Facility provide hazardous waste disposal for the Action area. Both facilities are located on Highway 29 at Kelly Road. The Recycle and Reuse facility is open during regular business hours during the week, while the Household Hazardous Waste facility is open on

Fridays, Saturdays, and Sundays from 9am to 3pm. There is also an additional Permanent Collection Facility for Napa County located at 889A Devlin Road, American Canyon (Napa Sanitation District, 2008).

Electricity. PG&E provides electricity to businesses and residences in Napa County.

3.11.2 Regulatory Framework

The policies and regulations associated with impacts to utilities and services within the affected jurisdictions are presented in **Appendix 3.11**.

3.11.3 Environmental Consequences/ Impacts

Significance Criteria under CEQA

Based on the Appendix G of the *CEQA Guidelines*, project implementation would have significant impacts and environmental consequences on public services and utilities if it would interfere with acceptable service ratios, response times, or other performance objectives for any of the following public services: emergency services; emergency response plans or emergency evacuation plans; fire protection; police protection; schools; parks; or other public facilities. Refer to **Chapter 5, Growth Inducement**, regarding the potential for the NBWRP to induce growth and contribute to indirect, secondary impacts, including increased demand for public services and utilities.

Impact Discussion

Impact 3.11.1: Temporary effect on response times for emergency service providers. Project construction activities could temporarily affect response times for emergency service providers. (Less than Significant with Mitigation)

Project construction would include pipeline installation, booster pump station and storage facility construction and wastewater treatment upgrades. Pipeline installation would occur predominantly along existing roadways and could disrupt normal access to homes and businesses along these routes and affect response times for local police and fire departments as well as ambulance service in case of emergencies. This could be a significant impact. Construction of booster pump stations and storage reservoirs would occur at disturbed sites or within existing WWTP sites. Associated construction activities, including daily arrival and departure of construction workers and trucks hauling equipment and materials, could cause temporary traffic congestion along access roads to the construction sites. This could significantly affect response times for emergency providers. See **Section 3.7, Transportation and Traffic**, for additional information on construction-related traffic. Treatment upgrades would occur within existing WWTP facilities and would not involve substantial construction activities that would affect response times for emergency providers; therefore are not discussed further.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

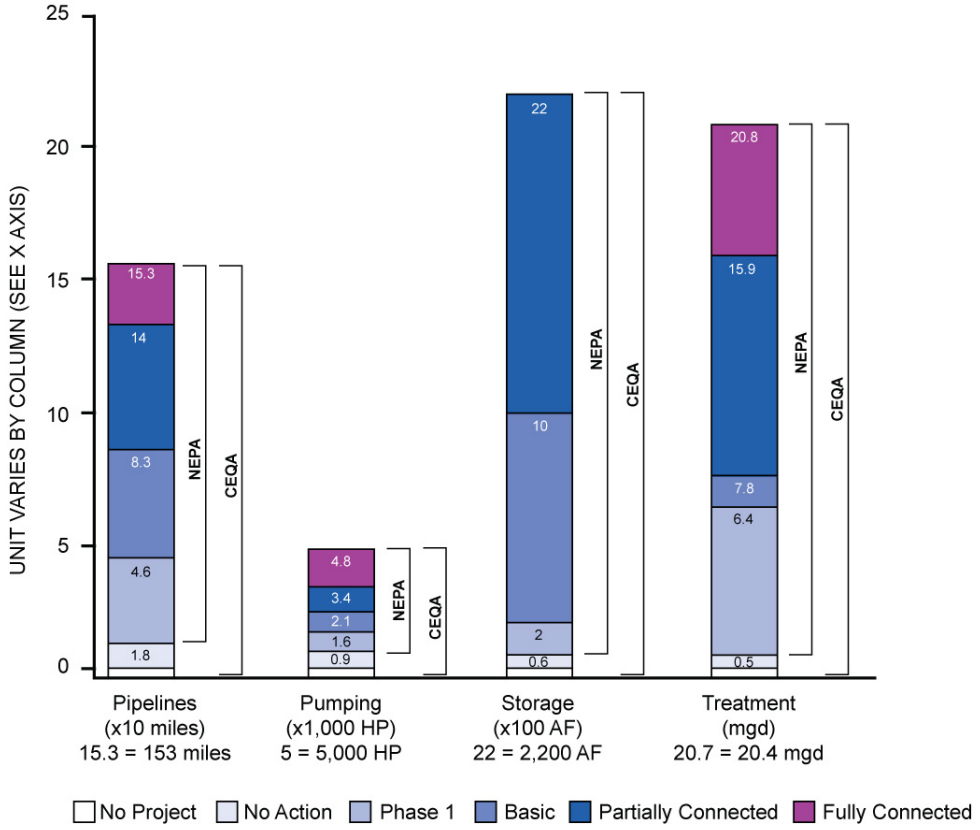
No Action Alternative

The impacts from the projects that would be implemented under No Action Alternative are described below.

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.11-1, No Action**).

CHART 3.11-1
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

Under the No Action Alternative recycled water distribution facilities would be constructed within the North Service Area. Project construction would be similar to construction discussed above and could be significant impact. Access to public facilities located along the proposed pipeline alignment (see **Table 3.11-1**), could be affected during pipeline installation. Implementation of **Mitigation Measure 3.11.1** would reduce this impact to a less-than-significant level.

Construction of the booster pump station would be similar to construction discussed above and could have a significant effect. Implementation of **Mitigation Measure 3.11.1** would reduce this impact to a less-than-significant level.

SVCSD

The No Action Alternative would include installation of 5.2 miles of pipeline in Sonoma Valley and one pump station at the SVCSD WWTP and components from the Napa Salt Marsh Restoration Project. The Sonoma Valley Recycled Water Project (SVRWP) EIR (2006) provided environmental analysis of the proposed components. As stated in the EIR, the pipeline installation would be primarily in rural and agricultural areas and would affect the following primary roadways: Arnold Drive, Highway 116 (Stage Gulch Road), Watmaugh Road, Leveroni Road, Elm Avenue. Project construction could also cause temporary traffic congestion and possible road closures, which could affect response time for local police and fire departments as well as ambulance services in case of emergencies. The impact could be significant. However, implementation of **Mitigation Measure 3.11.1** would reduce these impacts to a less-than-significant level.

Likewise, booster pump station construction could cause traffic congestion along WWTP access roads. The impact could be significant. However, implementation of **Mitigation Measure 3.11.1** would reduce these impacts to a less-than-significant level.

Under the Napa Salt Marsh Project construction of any of the three pipeline options, project construction would be similar to construction discussed above, but would likely not be significant because of the temporary nature of the construction and the absence of public services in the area. However implementation of **Mitigation Measure 3.11.1** will be implemented to reduce any impacts to a less- than- significant level.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

TABLE 3.11-1
SCHOOLS, HOSPITALS, AND FIRE STATIONS IN PROJECT VICINITY

City	Street Address
City of San Rafael	
Schools	
Venetia Valley School	177 North San Pedro Road
Glenwood Elementary	25 West Castlewood Drive
Bahia Vista Elementary	125 Bahia Way
Coleman Elementary	800 Belle Avenue
Laurel Dell Elementary	225 Woodland Avenue
Sun Valley Elementary	75 Happy Lane
Dixie Elementary School	177 North San Pedro Road
Mary E. Silveira Elementary School	375 Blackstone Drive
Vallecito School	50 Nova Albion Way
Preschools	
Redeemer Preschool	123 Knight Drive
Hospitals	
Kaiser Hospital San Rafael	99 Montecillo Road
Fire Stations	
San Rafael Fire Department Station 5	955 Point San Pedro Road
San Rafael Fire Department Station 7	3530 Civic Center Drive
City of Novato	
Schools	
Hamilton Elementary School	1 Main Gate Road
Loma Verde Elementary School	399 Alameda de la Loma
Lu Suttion Elementary School	1800 Center Road
Lynwood Elementary School	1320 Lynnwood Drive
Olive Elementary School	629 Plum Street
Pleasant Valley Elementary School	755 Sutro Avenue
Rancho Elementary School	1430 Johnson Street
San Ramon Elementary School	45 San Ramon Way
Marin Christian Academy	1370 South Novato Blvd
North Bay Christian Academy	6965 Redwood Blvd
Hill Middle School	720 Diablo Avenue
Novato High School	625 Arthur Street
San Marin High School	15 San Marin Drive
Preschools	
Noah's Ark Preschool	1370 South Novato Blvd
Novato Parents Nursery School	1473 South Novato Blvd.
Montessori School of Novato	1466 South Novato Blvd.
St. Francis Preschool	967 5th Street
Hospitals	
Novato Community Hospital	180 Rowland Way
Fire Stations	
Novato Fire Protection District Station 1	7025 Redwood Boulevard
Novato Fire Protection District Station 2	450 Atherton Avenue
Novato Fire Protection District Station 3	65 San Ramon Way
Novato Fire Protection District Station 4	319 Enfrente Drive
Novato Fire Protection District Station 5	5 Bolling Drive
City of Sonoma	
Schools	
El Verano Elementary School	18606 Riverside Drive
Prestwood Elementary	343 Mac Arthur Street
Sassarini Elementary	652 Fifth Street West
Coleman Elementary	800 Belle Avenue
Laurel Dell Elementary	225 Woodland Avenue
Adele Harrison Middle School	1150 Broadway

TABLE 3.11-1 (Continued)
SCHOOLS, HOSPITALS, AND FIRE STATIONS IN PROJECT VICINITY

City	Street Address
City of Sonoma (cont.)	
Schools (cont.)	
Altimira Middle School	17805 Arnold Drive
Sonoma Valley High	20000 Broadway
The Presentation School	20872 Broadway
Preschools	
The Little School	991 Broadway
Little Shepherd Preschool	18980 Arnold Drive
Hospitals	
Sonoma Valley Hospital	347 Andrieux Street
Fire Stations	
Sonoma Valley Fire and Rescue Authority Station 1	630 2nd Street West
Sonoma Valley Fire and Rescue Authority Station 2	877 Center Street El Verano
City/ County of Napa	
Schools	
Mount George Elementary	1019 2nd Street
Alta Height Elementary	15 Montecito Boulevard
Carnero Elementary	1680 Los Carneros Avenue
Vichy Elementary	3261 Vichy Avenue
Chamberlain High	74 Wintun Ct
Phillips Elementary School	1210 Shetler Ave
Silverado Middle School	1133 Coombsville Road
Wintun School	74 Wintun Ct, off Imola Avenue
Preschools	
Napa Children's Center	2097 Imola Ave
Napa Infant Preschool Program	74 Wintun Ct
Hospitals	
Queen of the Valley Medical Center	1000 Trancas Street
Napa State Hospital	2100 Napa Vallejo Highway
Fire Stations	
Napa City Fire Department Station 1	930 Seminary Street
Napa City Fire Department Station 4	251 Gasser Avenue

SOURCE: ESA, 2008

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts related to public services and utilities in the action area under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative (see Chart 3.11-1, Phase 1). A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would upgrade tertiary treatment capacity at the LGVSD and construct a new booster pump station; NMWD would install one of three pipeline options, described in **Chapter 2, Project Description**, which would connect the LGVSD WWTP Recycled Water Treatment Facility to facilities constructed by NMWD.

Pipeline installation for Options A, B, and C would not cause significant impacts on public service access. Pipeline installation for the Coast Guard Housing Distribution Loop would occur in primarily residential areas. Primary roadways that would be affected include Main Gate Road, South Oakwood Drive and Hangar Avenue. Primary access to Hamilton Elementary School, located at 1 Main Gate Road, may be affected by pipeline installation. Pipeline installation would be similar to construction discussed above and could have significant impacts. However, implementation of **Mitigation Measure 3.11.1** would reduce these impacts to a less-than-significant level.

Booster pump station construction could cause traffic congestion along WWTP access roads. The impact could be significant. However, implementation of **Mitigation Measure 3.11.1** would reduce these impacts to a less-than-significant level.

Novato SD/NMWD

The Novato North and Central Service Areas of the NBWRP would involve installation of pipeline and construction of two pump stations within the existing Novato SD WWTP and within a disturbed site on Atherton Avenue. Pipeline installation would occur primarily in residential and commercial areas and would affect the following primary roadways Atherton Avenue, Olive Avenue, H Lane, Rowland Boulevard, Hill Road, Diablo Avenue and Redwood Boulevard. Project construction would be similar to construction discussed above and could be significant impact. Access to public facilities located along the proposed pipeline alignment, including multiple schools, fire stations, and the Novato Community Hospital (see Table 3.11-1), could be affected during pipeline installation. This could be a significant impact. Implementation of **Mitigation Measure 3.11.1** would reduce this impact to a less-than-significant level.

Construction of the booster pump station would be similar to construction discussed above and could have a significant effect. Implementation of **Mitigation Measure 3.11.1** would reduce this impact to a less-than-significant level.

SVCSD

Under Phase 1, impacts related to the SVRWP pipeline alignment and the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

Phase 1 would involve installation of pipeline and construction of four booster pump stations in the MST area. Pipeline installation would occur primarily in residential and open spaces areas and would affect roadways discussed under the No Action Alternative and the following primary roadways: Coombsville Road/Wild Horse Valley Road, North Avenue, 1st Avenue, 3rd Avenue,

and East 3rd Avenue. Project construction would be similar to construction discussed above and could be significant impact. Access to the Napa State Hospital and multiple school facilities located along the alignment (see Table 3.11-1) could be affected during pipeline installation. This could be a significant impact. Implementation of **Mitigation Measure 3.11.1** would reduce these impacts to a less-than-significant level.

Construction of the booster pump station would be similar to construction discussed above and could have a significant effect. Implementation of **Mitigation Measure 3.11.1** would reduce this impact to a less-than-significant level.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts related to public services and utilities in the action area under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative (see Chart 3.11-1, Basic System). A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Basic System, project construction would involve increasing tertiary treatment capacity by at the LGVSD WWTP by 0.3 mgd through onsite improvements. As discussed above, no additional impacts that affect response times for emergency providers.

Novato SD/NMWD

The Basic System would involve pipeline installation along existing roadways between the Novato SD WWTP and the Petaluma River and increasing tertiary treatment capacity at the Novato SD WWTP by 1.2 mgd. Treatment upgrades would be similar to those discussed above and would not cause significant impacts. Pipeline installation would occur primarily in open space areas and construction would be similar to construction discussed above. However, impacts would likely not be significant because of the temporary nature of the construction and absence of public facilities. Additionally, implementation of **Mitigation Measure 3.11.1** would reduce any impact to a less-than-significant level.

SVCSD

The Basic System would involve pipeline installation which primarily occurs in open space and agricultural areas north of the Phase 1 alignment. As discussed above, construction could cause traffic congestion and possible road closures which could affect response time for local police and fire departments as well as ambulance services in case of emergencies. Altamira Middle School is located in the project vicinity and primary access to this facility may be obstructed because of

pipeline construction. This could have a significant impact. Implementation of **Mitigation Measure 3.11.1** would reduce these impacts to a less-than-significant level.

Under Phase 1, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

The Basic System would involve pipeline installation and a tertiary treatment increase of 5.5 mgd at the Soscol WWTP as part of the Carneros Area Project. Pipeline installation would occur mostly in open space and agricultural areas and would be similar to construction discussed above. Impacts would likely not be significant because of the temporary nature of the construction and the absence of public facilities in the area. **Mitigation Measure 3.11.1** will be implemented to reduce any impacts to a less-than-significant level.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts related to public services and utilities in the action area under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative (see Chart 3.11-1, Partially Connected). A discussion of impacts by Member Agency is provided below.

LGVSD/ NMWD

Under the Partially Connected System, project construction would involve installation of pipeline along existing roadways and a fire road through China Camp State Park to Peacock Gap Golf Course. Pipeline installation would occur mostly in open space and residential areas. Pipeline installation would be similar to construction discussed above and could have significant impacts. Access to public facilities in vicinity of the project, including Venetia Valley School (see Table 3.11-1), could be also affected by pipeline installation. Construction along the fire road in China Camp State Park could affect emergency access and response times. This could be significant impact. Implementation of **Mitigation Measure 3.11.1** would reduce this impact to a less-than-significant level.

Novato SD/ NMWD

Under the Partially Connected System, project construction would involve installation of a pipeline from the LGVSD WWTP north to join a pipeline extending from Novato SD treatment plant. The pipeline installation would primarily occur in residential and commercial areas and would be similar to construction discussed above. This could be a significant impact. The pipeline under the Basic System from the Novato SD WWTP to the Petaluma River would extend to serve

Sears Point service area under the Partially Connected System. The area is primarily open space. Pipeline installation would be similar to that discussed above; however, the impact is not expected to be significant because of the temporary nature of the construction and the absence of public services in the area. Implementation of **Mitigation Measure 3.11.1** will be implemented to reduce any impacts to a less-than-significant level.

SVCSD

Under the Partially Connected System, project construction would include installation of Southern Sonoma Valley pipelines, construction of a new recycled water storage pond within the existing SVCSD WWTP, and construction of additional system storage in the Carneros West Area. Pipeline installation would be similar to construction discussed above; however it would be primarily in open space and agricultural areas with no nearby residences. Impacts would not be significant because of the temporary nature of the construction and the absence of public services in the area. However, **Mitigation Measure 3.11.1** will be implemented to reduce any impacts to a less-than-significant level.

As discussed above, construction of the storage pond within the SVCSD WWTP property could cause traffic congestion along WWTP access roads. This impact could be significant. Implementation of **Mitigation Measure 3.11.1** would reduce this impact to a less-than-significant level.

Napa SD

Under the Partially Connected System, project construction would involve installation of pipelines in the Carneros East Area and the Napa MST Area and Rehabilitation of a storage reservoir, which are primarily open space and agricultural areas. Pipeline installation would be similar to construction discussed above; and is considered significant because of the temporary nature of the construction and the absence of public services in the area. **Mitigation Measure 3.11.1** will be implemented to reduce any impacts to a less-than-significant level.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts related to public services and utilities in the action area under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative (see Chart 3.11-1, Fully Connected). A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above.

Novato SD/NMWD

The Fully Connected System would include installing additional pipelines to serve an extended Sears Point service area. Pipeline installation would primarily be in an open space area and would be similar to construction discussed above under the Partially Connected System; however impacts would not be significant because of the temporary nature of the construction and the absence of public services in the area. Implementation of **Mitigation Measure 3.11.1** would reduce any impacts to a less-than-significant level.

SVCSD

Under the Fully Connected System, project construction would involve installation of pipelines north toward the Central Sonoma Service Area. Pipelines would extend north primarily in open space and agricultural areas. Pipeline installation would be similar to construction discussed above; however, it is likely to be insignificant because of the temporary nature of the construction and the absence of public services in the area. **Mitigation Measure 3.11.1** will be implemented to reduce any impacts to a less-than-significant level.

Napa SD

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above.

Mitigation Measure

> **Mitigation Measure 3.11.1:** The Member Agencies will coordinate with local emergency service providers in its service area to inform them of the proposed construction activities and schedule, and provide temporary alternate access routes around construction areas as necessary.

Impact Significance after Mitigation: Less than Significant.

Impact 3.11.2: Short-term police and fire assistance. Project construction activities could require short-term police and fire protection services to assist in traffic management or in the event of an accident. (Less than Significant with Mitigation)

Project construction would include pipeline installation, pump station and storage facility construction and wastewater treatment upgrades. Pipeline installation has the potential to generate a short-term increase in demand for police and fire services if an accident were to occur during construction. Pipeline construction-related hazards would include traffic congestion, rough road conditions, open trenches, and operation of heavy construction equipment. Construction activities could also result in interference with high-pressure gas lines, petroleum product lines, and high-

voltage lines. In the event of such an occurrence, response from fire units may be required. This could be a significant impact.

Construction of pump stations and storage reservoirs also have the potential to generate a short-term increase in demand for police and fire services if an accident were to occur during construction. Associated construction activities, including daily arrival and departure of construction workers and trucks hauling equipment and materials, could cause temporary traffic congestion along access roads to the construction sites. See **Section 3.7, Transportation and Traffic**, for further information. Additional construction-related hazards would include rough road conditions, open trenches, and operation of heavy construction equipment. Construction activities could also interfere with high-pressure gas lines, petroleum product lines, and high-voltage lines. In the event of such an occurrence, response from fire units may be required. This could be a significant impact.

Treatment upgrades would occur within existing WWTP facilities and would not require additional police and fire protection and are therefore not discussed further.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Future baseline conditions (2020) for emergency services are assumed to be equivalent to current conditions.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.11-1, No Action). A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

Project construction under the No Action Alternative would be similar to construction discussed above and could require police and traffic assistance. Pipeline installation and booster pump construction would be similar to construction discussed above, and could have a significant

effect. However implementation of **Mitigation Measure 3.11.2** will be implemented to reduce any impacts to a less-than-significant level.

SVCSD

Pipeline installation would occur primarily in rural and agricultural areas and could require police and fire assistance along Arnold Drive, Highway 116 (Stage Gulch Road), Watmaugh Road, Leveroni Road, Elm Avenue. Pipeline installation and booster pump station construction would be similar to construction discussed above, and could have a significant effect. However implementation of **Mitigation Measure 3.11.2** will be implemented to reduce any impacts to a less-than-significant level.

Under the Napa Salt Marsh Restoration Project, implementation of any of three pipeline options (see **Chapter 2, Project Description**) would occur primarily in open land areas and would affect the following roadways: Green Island Road, Las Amigas Road, Milton Road, Buchlis Station Road. Project construction would be similar to construction discussed above, and could have a significant effect. However implementation of **Mitigation Measure 3.11.2** will be implemented to reduce any impacts to a less-than-significant level.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The need for addition police and fire protection under Phase 1 would be equivalent to and greater than that discussed for the No Action Alternative, in proportion to the facilities under this alternative (see Chart 3.11-1, Phase 1). A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would upgrade tertiary treatment capacity at LGVSD and construct a new booster pump station; NMWD would install one of three pipeline options, described in **Chapter 2, Project Description**, which would connect the LGVSD WWTP Recycled Water Treatment Facility to facilities constructed by NMWD.

Under Phase 1, pipeline installation for the Coast Guard Housing Distribution Loop would occur primarily in residential areas and would require police and traffic assistance along Main Gate Road, South Oakwood Drive and Hangar Avenue. Pipeline installation for Options A, B, and C

would occur primarily in open, undeveloped areas between LGVSD WWTP and the Hamilton Field area. Project-related construction has the potential to generate a short-term increase in demand for police and fire services if an accident were to occur during construction. This could be a significant impact. Implementation of **Mitigation Measure 3.11.2** would reduce any impacts to a less-than-significant level.

Novato SD/NMWD

Implementation of the project in the Novato North and Central Service Areas would involve pipeline predominantly along existing roadways and construction of two booster pump stations within the existing Davidson Street WWTP and within a disturbed site on Atherton Avenue. Pipeline installation would occur primarily in residential and commercial areas and roadways that would be affected include Atherton Avenue, Olive Avenue, H Lane, Rowland Boulevard, Hill Road, Diablo Avenue and Redwood Boulevard. Pipeline installation and booster pump construction would be similar to construction discussed above, and could have a significant affect. However implementation of **Mitigation Measure 3.11.2** will be implemented to reduce any impacts to a less- than- significant level.

SVCSD

Primary roadways that would be affected include Arnold Drive, Orange Avenue, Leveroni Road, Watmaugh Road, Broadway, Napa Road, Specht Road, and 8th Street East. Project-related construction would be similar to the construction discussed above and could have a significant affect. However, implementation of **Mitigation Measure 3.11.2** will be implemented to reduce any impacts to a less- than- significant level.

Construction of a storage pond also has the potential to generate a short-term increase in demand for police and fire services if an accident were to occur during construction. This could be a significant impact. Implementation of **Mitigation Measure 3.11.2** would reduce any impacts to a less-than-significant level.

Under Phase 1, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

Phase 1 would include the Napa MST area project which would involve installation of pipeline and construction of four booster pump stations. Pipeline installation would occur primarily in residential and open spaces areas and roadways that would be affected include Imola Avenue, Wild Horse Valley Road, 4th Avenue, Coombsville Road, North Avenue, 1st Avenue, 3rd Avenue, East 3rd Avenue, and Olive Hill Road. Pipeline installation and booster pump construction would be similar to construction discussed above, and could have a significant affect. However implementation of **Mitigation Measure 3.11.2** will be implemented to reduce any impacts to a less- than- significant level.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The need for addition police and fire protection under the Basic System would be equivalent to and greater than that discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative (see Chart 3.11-1, Basic System). A discussion of impacts by Member Agency is provided below.

LGVSD

Under the Basic System, project construction would involve increasing tertiary treatment capacity by at the LGVSD WWTP by 0.3 mgd through onsite improvements. As discussed above, project construction is not expected to require additional police and fire protection.

Novato SD

The Basic System would involve pipeline installation and tertiary treatment capacity upgrades, similar to discussed above, which would cause a significant impact. **Mitigation Measure 3.11.2** would be implemented to reduce impacts to a less-than-significant level.

SVCSD

The Basic System would involve pipeline installation primarily in open space and agricultural areas north of the Phase 1 alignment. As discussed above, construction would have the potential to cause a short-term increase in demand for police and fire services if an accident were to occur during construction. Implementation of **Mitigation Measure 3.11.2** would reduce this impact to a less-than-significant level.

Under the Basic System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

The Basic System would involve pipeline installation in the Carneros Area and tertiary treatment increase of 5.5 mgd at the Napa SD WWTP. Treatment upgrades would be similar to those discussed above and would not cause significant impacts. Pipeline construction would be similar to construction discussed above and could cause a significant impact. Implementation of **Mitigation Measure 3.11.2** would reduce this impact to a less-than-significant level.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the

Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The need for addition police and fire protection under the Partially Connected System would be equivalent to and greater than that discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative (see Chart 3.11-1, Partially Connected). A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

The Partially Connected System would involve installation of pipelines along existing roadways to Peacock Gap Golf Course and a fire road through China Camp State Park. Pipeline installation would be similar to construction activities discussed above and could require additional police and fire assistance in the occurrence of an accident. This could be a significant impact. Implementation of **Mitigation Measure 3.11.2** would reduce this impact to a less-than-significant level.

Novato SD/NMWD

The Partially Connected System would include installing additional pipelines to serve the northern, central, and western portions of the NMWD Urban Reuse Project. An added pipeline from LGVSD WWTP would extend north to join a Novato SD pipeline. The pipeline from the Ignacio WWTP would be extended to serve Sears Point service area. Pipeline installation would be similar to construction discussed above and could be a significant impact. Implementation of **Mitigation Measure 3.11.2** would reduce this impact to a less-than-significant level.

SVCSD

The Partially Connected System would include installation of Southern Sonoma Valley pipelines, construction of a new recycled water storage pond within the existing SVCSD WWTP and construction of additional system storage in the Carneros West Area. Project-related construction would be similar to construction discussed above and could be a significant impact. However, implementation of **Mitigation Measure 3.11.2** would reduce this impact to a less-than-significant level. Under the Partially Connected System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

The Partially Connected System would include installation of additional pipelines to the Carneros Area and the Napa MST Area, as well as construction of a storage reservoir in the Napa MST Area. Pipeline installation would be similar to construction discussed above and could be a significant impact. Implementation of **Mitigation Measure 3.11.2** would reduce this impact to a less-than-significant level.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity,

and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The need for addition police and fire protection under the Fully Connected System would be equivalent to and greater than that discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative (see Chart 3.11-1, Fully Connected). A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above.

Novato SD/NMWD

The Fully Connected System of the NBWRP would include installing additional pipelines to serve an extended Sears Point service area. Pipeline installation would be similar to construction discussed above and could be a significant impact. **Mitigation Measure 3.11.2** would be implemented to reduce any impacts to a less-than-significant level.

SVCSD

The Fully Connected System of the NBWRP would include installing pipelines north of the SVRWP to the Central Sonoma Service Area. As discussed above, pipeline installation could generate a short-term increase in demand for police and fire services in the occurrence of an construction-related accident. This could be a significant impact. Implementation of **Mitigation Measure 3.11.2** would reduce this impact to a less-than-significant level.

Under the Fully Connected System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above.

Mitigation Measures

> **Mitigation Measure 3.11-2:** Public service providers shall provide, upon request, a copy of the Traffic Control Plan to the related police and fire agencies for their review prior to construction. The appropriate Member Agency shall provide 72-hour notice to the local service providers prior to construction of individual pipeline segments. Discussion on the Traffic Control Plan is provided in Section 3.7, Traffic and Circulation.

Impact Significance after Mitigation: Less than Significant.

Impact 3.11.3: Temporary Accidental Disruption to Utility Services. Project construction could result in temporary planned or accidental disruption to utility services. (Less than Significant with Mitigation)

Project construction could result in damage to or interference with existing water, sewer, storm drain, natural gas, oil, electric, and/or communication lines and, in some cases, could require that existing lines be permanently relocated, potentially causing interruption in service. Numerous utility lines of varying sizes are located along and across proposed pipeline alignments; within the SVCSD, MMWD, LGVSD, Novato SD, and the Napa SD WWTPs; and at the various pumping plants and reservoir sites. Streets and trails function as utility corridors within the action area, which creates a greater potential for interference with other existing utilities.

In most cases, service disruptions would be temporary and would not exceed one day. All utility lines and cables that would be disrupted during pipe installation would be identified during preliminary design. As a condition of approval for either a utility excavation permit or an encroachment permit, the Member Agencies would prepare a detailed engineering and construction plan that would thoroughly describe construction techniques and protective measures for minimizing impacts to utilities. Temporary and accidental impacts to smaller utility lines would be considered adverse, but not significant, because the affected area and duration of the impacts would be short-term. Disruptions to major utility lines would be considered significant, but mitigable.

Treatment upgrades at any of the WWTP's would not interrupt water supply service to the corresponding service areas because water service during any planned outages could be provided on a temporary basis from existing distribution storage. With the exception of planned outages to connect facilities to power, the WWTPs would remain online during the construction of proposed improvements. The expected duration of the planned outages would be 12 hours during the summer and 24 hours during the winter. The level of service during a planned outage would remain unchanged.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.11-1, No Action).

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

Pipeline installation under the No Action Alternative would be similar to construction discussed above and could have a significant effect on utilities. Construction of the booster pump station would be within the Novato SD WWTP and project-related construction would be localized to the booster pump site. Therefore it is likely that impacts to utilities would not be significant. **Mitigation Measure 3.11.3** would be implemented to reduce any impacts to a less-than-significant level.

SVCSD

As discussed above, the pipeline installation under the No Action Alternative would occur primarily in rural and agricultural areas and would affect the following primary roadways: Arnold Drive, Highway 116 (Stage Gulch Road), Watmaugh Road, Leveroni Road, Elm Avenue. As stated in the SVRWP EIR (ESA, 2006), there are two high voltage power lines that extend through the city of Sonoma. The pipeline alignment would traverse under or near these power lines. Pipeline installation would be similar to construction discussed above and could have a significant impact. Construction of the booster pump station would also be similar to that discussed above. Because the booster pump station would be constructed within the SVCSD WWTP property and project-related construction would be localized to the booster pump site it is likely that impacts to utilities would not be significant. Implementation of **Mitigation Measure 3.11.3** would reduce any impacts to a less-than-significant level.

Under the Napa Salt Marsh Restoration Project construction for the three pipeline options and the pump station would be similar to construction discussed above and would have a significant effect. Implementation of **Mitigation Measure 3.11.3** would reduce any impacts to a less-than-significant level. Construction of the booster pump station at the Napa SD WWTP would also be similar to that discussed above. Implementation of **Mitigation Measure 3.11.3** would reduce any impacts to a less-than-significant level.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to utility services under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would upgrade tertiary treatment capacity at LGVSD and construct a new booster pump station; NMWD would install one of three pipeline options, described in **Chapter 2, Project Description**, which would connect the LGVSD Recycled Water Treatment Facility to facilities constructed by NMWD.

Primary roadways that would be affected under Phase 1, as a result of implementation of the Coast Guard Housing Distribution Loop, would include Main Gate Road, South Oakwood Drive and Hangar Avenue. It is possible that power service could be temporarily disrupted during pipeline installation near the power lines. Telephone, cable, power, gas, water, and sewage services could also be temporarily disrupted. This could be a significant impact. During the construction of the booster pump station, the telephone, cable, power, gas, water, and sewage services could be temporarily disrupted; however, because the booster pump station would be constructed within the MMWD WWTP property it is likely that impacts to utilities will be insignificant. Implementation of **Mitigation Measure 3.11.3** would reduce any impacts to a less-than-significant level.

Novato SD/NMWD

Primary roadways that would be affected under Phase 1 include Atherton Avenue, Olive Avenue, H Lane, Rowland Boulevard, Hill Road, Diablo Avenue and Redwood Boulevard. Pipeline installation would be similar to construction discussed above and could have a significant affect to utilities. Construction of the Davidson Street booster pump station would occur within the Davidson Street WWTP and project-related construction would be localized to the booster pump site. In addition, implementation of **Mitigation Measure 3.11.3** would reduce any impacts to a less- than- significant level.

SVCSD

Under Phase 1, impacts related to the SVRWP pipeline alignment and the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

Utilities could be affected during pipeline installation along the following roadways: Imola Avenue, Coomsville Road /Wild Horse Valley Road, 4th Avenue, North Avenue, 1st Avenue, 3rd Avenue, East 3rd Avenue, and Olive Hill Road. Construction of the booster pump stations would be localized to the booster pump site; therefore it is likely that impacts to utilities would not be significant. However, implementation of **Mitigation Measure 3.11.3** will be implemented to reduce any impacts to a less-than-significant level.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to utility services under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD

The Basic System would involve increasing tertiary treatment capacity by 0.3 mgd through onsite improvements at the LGVSD treatment plant. There would be no likely additional impacts to utilities.

Novato SD

The Basic System would involve pipeline installation along existing roadways between the Ignacio WWTP and the Petaluma River and increasing tertiary treatment capacity at the Novato SD treatment plant by 1.2 mgd. The Ignacio WWTP site is located adjacent to a PG&E substation. Electrical lines run adjacent to the WWTP site. In addition, an aqueduct and the railroad right-of-way are also parallel to these electrical lines (ESA, 2005). The proximity of these utilities to the WWTP site could increase the potential for temporary impacts from construction in the vicinity of the Ignacio WWTP. However, no adverse impacts are anticipated during the construction and any temporary disruptions to utility service would be reduced by **Mitigation Measure 3.11.3**. Treatment upgrades would be similar to those discussed above under the LGVSD service area and would not cause significant impacts to utilities.

SVCSD

Please refer to the impact discussion under Phase 1. In addition, the Basic System would involve pipeline installation primarily in open space along the Northwestern Pacific Railroad Authority railroad tracks between Ramal Road and the SVCSD WWTP. Project construction would be similar to construction discussed above; however, impacts are likely to be less than significant because of the lack of utilities in the railroad. **Mitigation Measure 3.11.3** would be implemented to reduce impacts to a less-than-significant level.

Napa SD

Treatment upgrades under the Basic System would be similar to those discussed above and would not cause significant impacts to utilities. Pipeline installation would occur mostly in open space areas and would be similar to construction discussed above. This could cause a significant impact. Implementation of **Mitigation Measure 3.11.3** would reduce this impact to a less-than-significant level.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to utility services under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

The Partially Connected System would involve service to Peacock Gap, which would involve installation of pipeline along existing roadways and along a fire road through China Camp State Park. Two electrical transmission lines extend through the western edge of China Camp State Park and lie in close vicinity of the action area. Pipeline installation would occur mostly in open space and recreational areas and would have similar impacts from construction as discussed above. Implementation of **Mitigation Measure 3.11.3** would reduce this impact to a less-than-significant level.

Novato SD/NMWD

Under the Partially Connected System, a new pipeline from LGVSD WWTP would extend north to connect to a pipeline in the north and central Novato area. A pipeline would be extended to serve Sears Point service area. Three utility lines lie in the Ignacio WWTP site. Pipeline installation and the resulting impacts would be similar to construction discussed above. Implementation of **Mitigation Measure 3.11.3** would reduce this impact to a less-than-significant level.

SVCSD

Pipeline installation under the Partially Connected System would have similar impacts to that discussed above. Construction of the storage pond would also be similar to that discussed above. Because the storage pond would be constructed within the SVCSD WWTP property and project-related construction will be localized to the pond site it is likely that impacts to utilities would be insignificant (SVCSD, 2006). Implementation of **Mitigation Measure 3.11.3** would reduce any impacts to a less-than-significant level.

Napa SD

The Partially Connected System includes the installing additional pipelines to the Carneros Area Project and the Napa MST Area, as well as construction of a storage reservoir in the Napa MST Area. Pipeline installation would be similar to construction discussed above and could be a significant impact. Construction of a storage reservoir would be similar to construction discussed above, however construction will be localized to the storage reservoir site and is likely that

impacts to utilities will be insignificant. Implementation of **Mitigation Measure 3.11.3** would reduce any impacts to a less-than-significant level.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to utility services under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

The impacts associated with Fully Connected System would be equivalent to the impacts discussed for Partially Connected System above.

SVCSD

The Fully Connected System would include installation pipelines north of the SVRWP area to the Central Sonoma Service Area primarily in open space and agriculture areas. Pipeline installation and the associated impacts would be similar to that discussed above. Implementation of **Mitigation Measure 3.11.3** would reduce this impact to a less-than-significant level.

Novato SD/NMWD

The Fully Connected System would include installation of additional pipelines to serve an extended Sears Point service area. Pipeline installation would have similar impacts to those discussed above and could result in temporarily disruption of utilities. **Mitigation Measure 3.11.3** would be implemented to reduce any impacts to a less-than-significant level.

Napa SD

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above.

Mitigation Measures

Mitigation Measure 3.11.3: The Member Agencies will identify utilities along the proposed pipeline routes and project sites prior to construction and implement the following measures:

a. Utility excavation or encroachment permits shall be obtained as required from the appropriate agencies. These permits include measures to minimize utility disruption. The service provider and its contractors shall comply with permit conditions regarding utility disruption.

b. Utility locations shall be verified through the use of the Underground Service Alert services and/or field survey (potholing).

c. As necessary, detailed specifications shall be prepared as part of the design plans to include procedures for the excavation, support, and fill of areas around utility cables and pipes. All affected utility services shall be notified of construction plans and schedule. Arrangements shall be made with these entities regarding protection, relocation, or temporary disconnection of services.

d. In areas where the pipeline would traverse parallel to underground utility lines within five feet, the project applicant shall employ special construction techniques, such as trench wall-support measures to guard against trench wall failure and possible resulting loss of structural support for the excavated areas.

e. Residents and businesses in the project corridor shall be notified of any planned utility service disruption two to four days in advance, in conformance with county and state standards.

Impact Significance after Mitigation: Less than Significant.

Impact 3.11.4: Increase in Power Usage. NBWRP could increase power usage. (Less than Significant)

Construction and operation of the proposed facilities would result in an irretrievable and irreversible commitment of natural resources though direct consumption of fossil fuels and use of materials. The proposed activities would require connections to existing power sources, which would increase the short-term use of electricity and refined petroleum products during the operation of construction equipment (primarily gas, diesel, and motor oil). Equipment manufacturers have made progress in addressing fuel efficiency during construction, including the development of fuel-efficient engines and equipment. This short-term increase in electricity demand would not be significant, and no mitigation is required.

The current average energy consumed within the LGVSD, Novato SD, and SVCSD service areas is estimated at 1,120 kilowatt-hour per AFY (kWh/AFY) of potable water served (CDM, 2009). Much of the energy involved in municipal water systems is used for pumping. Over the long term, increased consumption of electricity and nonrenewable resources would primarily occur at booster pump stations.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Future baseline conditions (2020) for power usage are anticipated to increase as development that is allowed under the local general plans is implemented.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.11-1, No Action**). A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

Under the No Action Alternative, NBWRP would use power to pump water from the Novato SD WWTP facility, to the terminus of the proposed pipe alignments. Operation of the booster pump stations would incrementally increase electrical demand by approximately 139,000 kilowatt-hours per year. As discussed above, energy conserving practices would be used to reduce energy consumption. Therefore, impacts would be considered less than significant.

SVCSD

As stated in the SVRWP EIR (ESA, 2006), power would be utilized for the NBWRP to pump water from the SVCSD WWTP and storage facilities, to the terminus of the proposed pipe alignments. As discussed above, energy conserving practices would be used to reduce energy consumption. Therefore, impacts would be considered less than significant.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The average energy consumption under Phase 1 in the action area would be approximately 402 kWh/AFY of recycled water served[1] (CDM, 2009) with potential energy savings of approximately 718 kWh/AFY as compared to current energy consumption. The impacts to energy usage under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below in **Table 3.11-2**.

TABLE 3.11-2
ANNUAL ENERGY CONSUMPTION (KW-HR/YEAR) OF PROJECT PUMP STATIONS

		Phase 1		Alternative 1		Alternative 2		Alternative 3	
Agency	**Location**	**Hp**	**kW-hr/yr**	**Hp**	**kW-hr/yr**	**Hp**	**kW-hr/yr**	**hp**	**kW-hr/yr**
LGVSD	LGVSD WWTP	72	39,000	71	38,000	91	49,000	203	109,000
	Peacock Gap (existing)	0	0	0	0	221	119,000	221	119,000
Total		**72**	**39,000**	**71**	**38,000**	**337**	**181,000**	**449**	**241,000**
Novato SD	Novato WWTP	259	139,000	258	139,000	586	315,000	706	379,000
	So Sonoma Valley	0	0	0	0	0	0	260	140,000
Total		**259**	**139,000**	**258**	**139,000**	**584**	**313,000**	**964**	**518,000**
SVCSD	SVCSD WWTP	662	355,000	872	468,000	1,315	706,000	1,649	885,000
	Sonoma Valley (1A)	0	0	156	84,000	107	57,000	273	146,000
	Sonoma Valley (1B)	0	0	56	30,000	55	30,000	160	86,000
	Sonoma Valley (2)	0	0	5	3,000	8	4,000	120	64,000
	Sonoma Valley (3)	0	0	21	11,000	22	12,000	22	12,000
	So Sonoma Valley	0	0	0	0	260	140,000	0	0
	Carneros West (new)	0	0	0	0	52	28,000	61	33,000
	Carneros West (exist)	218	117,000	218	117,000	218	117,000	218	117,000
	Central Sonoma Valley	0	0	0	0	0	0	409	219,000
Total		**957**	**510,000**	**1,327**	**713,000**	**2,037**	**1,094,000**	**2,911**	**1,562,000**
Napa SD	Napa WWTP (new)	418	225,000	476	256,000	471	253,000	271	253,000
	Napa WWTP (exist)	1,254	673,000	1,428	767,000	1,410	757,000	1,410	757,000
	MST	244	131,000	244	131,000	382	205,000	382	205,000
	Carneros East	0	0	0	0	105	57,000	105	57,000
Total		**2,787**	**1,497,000**	**2,896**	**1,555,000**	**3,181**	**1,709,000**	**3,176**	**1,705,000**
Total		**3,126**	**1,679,000**	**3,804**	**2,044,000**	**5,304**	**2,849,000**	**6,670**	**3,581,000**

hp = horsepower, kW-hr/year = kilowatt-hour per year

SOURCE: CDM, 2009

[1] Energy consumption under current conditions does not include Napa. The data assumes that all of the Sonoma Valley water demand in Phase 1 is currently served with potable water. Energy use for groundwater pumping in Sonoma Valley are not available.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage. The impacts to energy usage under the Basic System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below in Table 3.11-2.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage. The impacts to energy usage under the Partially Connected System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below in Table 3.11-2.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage. The impacts to energy usage under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below in Table 3.11-2. Table 3.11-2 provides annual power consumption for the pump stations for the NBWRP for each Member Agency. The Member Agencies would consider and employ approaches to conserving energy in the movement of water, which would include using energy-efficient equipment and implementing concurrent repairs and maintenance of facilities to minimize power use. Scheduling pumps to operate as much as possible during off-peak energy demand periods, within system constraints, also would reduce potential contributions to rolling blackouts. Also the additional storage provided by storage tanks, and storage reservoirs would provide for pumping variation and electrical load shift, with correspond energy rates, without interrupting water deliveries. Therefore, impacts would be considered less than significant.

Impact 3.11.5: Offset Potable Water Demand. Project operation could increase recycled water use in the action area and offset potable water supply, making it available for municipal uses. (Beneficial Impact)

The NBWRP would produce from zero (under No Project Alternative) to 12,724 acre-feet per year (AFY) of recycled water in Fully Connected System for the service areas (see **Table 3.11-3**). Table 3.11-3 shows the recycled water produced under the different alternatives of the NBWRP and the Conservation and Public Services Goals and Policies for each Member Agency. Use of this recycled water for urban and agricultural uses for each Member Agency would offset equivalent amount of potable water use and free up the water for municipal and domestic uses. Offsetting potable demands would also improve local and regional water supply reliability, allowing for flexibility during times of drought and giving groundwater supplies opportunity to recharge. The NBWRP would be consistent with the goals and policies listed as well as provide a water source. The impact would be beneficial.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Future baseline conditions (2020) for potable water demand is anticipated to increase proportionately as development allowed under the local general plans is implemented.

For comparison to the Action Alternatives, it is estimated that approximately 18 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.11-1, No Action). A discussion of individual Member Agencies is provided below.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage. The beneficial impacts of off-setting potable water under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below in Table 3.11-3.

TABLE 3.11-3
RECYCLED WATER PRODUCTION AND CONSISTENCY WITH LOCAL POLICIES

Policies in General Plans	LGVSD		Novato SD		SVCSD		Napa SD		Total
	Marin Countywide Plan 2020	City of San Rafael General Plan 2020	Marin Countywide Plan 2020	City of Novato General Plan 1998	Sonoma County Draft General Plan 2020	City of Sonoma General Plan	Napa County General Plan 2020	The City of Napa General Plan 2020	
	Water Resources Policy 3.1 and 3.b which encourage reducing the waste of potable water	Conservation Policy 20 and 20b which encourage the increased use of recycled water and support the extension of recycled water infrastructure	Water Resources Policy 3.1 and 3.b which encourage reducing the waste of potable water	Public Facilities Policy 6.2 and 6.4, which encourage the use of treated wastewater for irrigation.	Water Resources Policy WR-4j, k, l, m, n, which encourages the use of recycled water	Environmental Resources Policy 2.4, which encourages protection of groundwater sources and water conservation	Conservation Goal 13 and Policies CON-42e, 61a, 62b, which support the use of treated water to improve water supply reliability and enhance groundwater recharge and state that sustainable water projects should receive priority attention	Community Services Policy 9.5 and 10.1, which encourages the City to pursue use of reclaimed wastewater to offset the demand for potable water supplies as well as support effects of the Napa SD to promote the use of reclaimed wastewater	
Project	**Recycled Water Produced (AFY)**								
No Project Alternative	-		-		-		-		-
No Action Alternative	-		193		874				**1, 067**
Phase 1	202		542		874		2,137		**3,755**
Alternative 1: Basic System	202		542		2,719		3,192		**6,655**
Alternative 2: Partially Connected System	409		2,038		4,381		4,421		**11,250**
Alternative 3: Fully Connected System	409		3,701		4,230		4,421		**12,761**

SOURCE: CDM, 2009.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage. The beneficial impacts of off-setting potable water under the Basic System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below in Table 3.11-3.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage. The beneficial impacts of off-setting potable water under the Partially Connected System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below in Table 3.11-3.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage. The beneficial impacts of off-setting potable water under the Fully Connected System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below in Table 3.11-4.

3.11.4 Impact Summary by Service Area

Table 3.11-4 provides a summary of potential public services and utilities impacts associated with implementation of the NBWRP.

TABLE 3.11-4
POTENTIAL IMPACTS AND SIGNIFICANCE – PUBLIC SERVICES AND UTILITIES

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD	Novato SD	SVCSD	Napa SD
Impact 3.11.1: Temporary effect on response times for emergency service providers.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.11.2: Short-term police and fire assistance in traffic management.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.11.3: Temporarily, planned or accidental disruption to utility services.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.11.4: NBWRP could increase power usage.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LTS	LTS	NI
Phase 1	LTS	LTS	LTS	LTS
Alternative 1: Basic System	LTS	LTS	LTS	LTS
Alternative 2: Partially Connected System	LTS	LTS	LTS	LTS
Alternative 3: Fully Connected System	LTS	LTS	LTS	LTS
Impact 3.11.5: Increase in recycled water use and offset of potable water supply.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	BI	BI	NI
Phase 1	BI	BI	BI	BI
Alternative 1: Basic System	BI	BI	BI	BI
Alternative 2: Partially Connected System	BI	BI	BI	BI
Alternative 3: Fully Connected System	BI	BI	BI	BI

NI = No Impact
LTS = Less than Significant impact, no mitigation required
LSM = Less than Significant with Mitigation
BI = Beneficial Impact

3.11.5 References

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3.12 Cultural Resources

This section describes the existing cultural resources in the action area, the applicable regulations at the federal, state, and local levels, and the potential impacts to cultural resources from the North Bay Water Recycling Program (NBWRP). Information for the section was adapted from the Cultural Resources Survey Report completed for the NBWRA (ESA, 2008). The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

3.12.1 Affected Environment/Setting

Area of Potential Effects

The Area of Potential Effects (APE) for the NBWRP is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16[b]). In consultation with the Bureau of Reclamation, an archaeological APE and an architectural/structural APE was determined for the NBWRP (Welch, 2008).

Depending upon the project components, the archaeological APE has been determined as the area of direct impact for the NBWRP. For example, trenching for installing the recycled water pipelines would require a maximum width of three feet and a vertical depth of up to six feet; therefore the vertical APE would be six feet. For the NBWRP, an APE of 50-foot wide corridor (25-foot radius from centerline) would be assumed in undeveloped areas to accommodate for areas for staging and spoils. Depending upon the width of the roadway, a narrower horizontal APE with an average width of 12.5 feet extending through the right-of-way would be assumed in locations encumbered by existing improvements and high-volume roadways.

The improvements at the wastewater treatment plants (WWTPs) and construction of new booster pump stations have a varying archaeological APE (see **Table 3.12-1** below). Each horizontal APE would include the area of direct impact as well as a 25-foot horizontal extension to accommodate staging areas. Exact dimensions for the storage facilities have not yet been determined therefore a maximum horizontal APE would assume14-acres based on the overall size of a SVCSD storage reservoir. The locations of large staging areas outlined in the Project Description have not yet been determined for the project.

The architectural/structural APE for the NBWRP within developed areas would include the area of direct impact and the right-of-way. In the case of project components that would be located within undeveloped areas, the architectural/structural APE would be 25 feet from the centerline of the pipeline or a 25-foot buffer from a project component.

The existing cultural resources or affected environment was studied by conducting a records search at the Northwest Information Center (NWIC) of the California Historical Resources

Information System. The records search area included the APE and a quarter-mile radius of the area covered under the Basic System, the Partially Connected System, and the Fully Connected System. Results of the Records Search area were further delineated into an area of sensitivity assessment (ASA) Alternative 1, Phase 1. The ASA includes the APE and a 500-foot radius to identify locations of greater known cultural sensitivity.

TABLE 3.12-1
AREA OF DIRECT IMPACT FOR WWTP IMPROVEMENTS

Facility	Length (feet)	Width (feet)	Depth (feet)
Novato SD WWTP	None	None	None
SVCSD WWTP	1,675	770	6 (maximum)
Napa SD WWTP	114	40	6 (maximum)
Booster Pump Stations	25	25	6 (maximum)

SOURCE: ESA, 2008.

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States (U.S.) for federally-recognized Indian tribes or individual Indians. An Indian trust has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. ITAs can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with trust land. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land of which the U.S. is the trustee. By definition, ITAs cannot be sold, leased, or otherwise encumbered without approval of the U.S. The characterization and application of the U.S. trust relationship has been defined by case law that interprets Congressional acts, executive orders, and historic treaty provisions.

It is the general policy of the Department of the Interior (DOI) to perform its activities and programs in such a way as to protect ITAs and avoid adverse effects whenever possible (Reclamation, 2000). The proposed facilities would expand the regional use of recycled water in the North San Pablo Bay region for agricultural, urban, and environmental purposes, reduce reliance on local surface and groundwater supplies, and reduce discharges to San Pablo Bay. Implementation of the Basic System, the Partially Connected System, or the Fully Connected System would provide an additional 6,455 acre-feet per year (AFY), 11,215 AFY, or 12, 735 AFY of recycled water respectively for beneficial use. Reclamation will comply with procedures contained in Departmental Manual Part 512.2, guidelines, which protect ITAs.

The Proposed Action or alternatives would not be implemented on or affect tribal lands, areas where mineral or water rights may be held by a tribe, traditional hunting or fishing grounds, or other ITAs. The nearest proposed project construction activity to the Graton Rancheria would occur at a distance of approximately 12 miles away. Therefore, the proposed action would not affect ITAs. The potential for the project to affect significant Native American sites is addressed below.

Cultural History

This section summarizes the cultural history of the San Francisco Bay Area and the San Pablo Bay Region. Because archaeological regions can represent large geographic areas and display some cultural homogeneity, a discussion of the prehistoric, ethnographic, and historic contexts is useful in order to evaluate the project impacts to cultural resources in the APE.

Prehistoric Context

An analytic framework for the interpretation of the San Francisco Bay and North Coast Ranges prehistory is provided by Fredrickson (1974), who divided human history in California into three broad periods: the Paleoindian period, the Archaic period, and the Emergent period. This scheme used sociopolitical complexity, trade networks, population, and the introduction and variations of artifact types to differentiate between cultural units. The significance of prehistoric sites rests partly on their ability to help archaeologists explain the reasons for these changes in different places and at different times in prehistory. The scheme, with minor revisions (Fredrickson, 1994), remains the dominant framework for prehistoric archaeological research in this region.

The Paleoindian period (10,000 to 6000 B.C.) was characterized by small, highly mobile groups occupying broad geographic areas. During the Archaic period, consisting of the Lower Archaic period (6000 to 3000 B.C.), Middle Archaic (3000 to 500 B.C.), and Upper Archaic (500 B.C. to A.D. 1000), geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The addition of milling tools, obsidian and chert concave-base points, and the occurrence of sites in a wider range of environments suggests that the economic base was more diverse. By the Upper Archaic, mobility was being replaced by a more sedentary adaptation in the development of numerous small villages, and the beginnings of a more complex society and economy began to emerge. During the Emergent Period (A.D. 1000 to 1700), social complexity developed toward the ethnographic pattern of large, central villages where political leaders resided, with associated hamlets and specialized activity sites. Artifacts associated with the period include the bow and arrow, small corner-notched points, mortars and pestles, and a diversity of beads and ornaments (Fredrickson, 1994; Gerike et al., 1996:3.11–3.17).

Many of the original surveys of archaeological sites in the San Francisco Bay Area were conducted between 1906 and 1908. These surveys yielded the initial documentation of nearly 425 “earth mounds and shell heaps” along the San Francisco Bay shoreline (Nelson, 1909). From these beginnings, the most notable sites in the Bay Area were excavated scientifically, like the Emeryville shell mound (designated as CA-ALA-309), the Ellis Landing Site (CA-CCO-295) in Richmond, and the Fernandez Site (CA-CCO-259) in Rodeo Valley (Moratto, 1984). These dense midden sites are vast accumulations of domestic debris and date back to over 2,000 years ago; the Emeryville shell mound, for example, is dated at approximately 2,310 years old ($^{\pm}$220 years). Other evidence suggests that human occupation in the region dates back farther, to approximately 5000 BC (Jones, 1992). While there are several interpretations as to the function of the shell mounds, much of the evidence suggests that they served as territorial landmarks as well as ceremonial features.

Archaeological sites in the Bay Area that date to the Middle Archaic Period (about 3000 to 500 B.C.) reveal an almost exclusive use of cobble mortars and pestles, which is often associated with a heavy reliance on acorns in the economy (Moratto, 1984). Such unusually intensive reliance on one food source indicates that a shift away from the earlier reliance on a broad spectrum of dietary sources to supply food was needed by around 1,000 years ago. The abundance of available food along lakeshores and estuaries during the late Pleistocene/early Holocene likely led to an overexploitation of the resources, which subsequently resulted in population increases; this may explain the shift toward exploiting a readily available yet less-favored food resource like acorns or seeds (Jones, 1991). Nevertheless, given the burgeoning size of Middle Archaic Period settlements, the populations were probably denser and more sedentary, yet continued to exploit a diverse resource base—from woodland, grassland, and marshland to shoreline resources throughout the Bay Area (King, 1974).

The population increases and larger, more complex settlements that began in the late-Middle Archaic Period typify the Upper Archaic Period (about 500 B.C. to A.D. 1000). The sociopolitical climate also appears to have become more elaborate, with clear differentiations in wealth. During the Emergent Period (about A.D. 1000 to 1700), however, there was a decline in new sites and the large shell mounds were abandoned. The population also declined during the Emergent Period, along with associated changes in resource use that were likely caused by humans depleting some terrestrial food sources during the Archaic Period (Broughton, 1994).

Ethnographic Setting

The action area is located within the ethnographic territory of three distinct Native American tribes: Coast Miwok, Patwin, and Wappo, as discussed below.

Coast Miwok

The majority of the action area, including the LGVSD, Novato SD, and SVCSD service areas, is located within the ethnographic territory of the Coast Miwok (Barrett, 1908; Kelly, 1978; Kroeber, 1925). The Coast Miwok language, a member of the Miwokan subfamily of the Penutian family, is divided into two dialects: Western, or Bodega, and Southern, or Marin, which in turn is subdivided into valley and coast. *Miwok* refers to the entire language family that was spoken by Coast Miwok, as well as Lake, Valley, and Sierra Miwok. Coast Miwok territory encompassed all of present-day Marin County and parts of Sonoma County, from Duncan's Point on the coast east to between the Sonoma and Napa Rivers. Each large village had a tribal leader but there does not appear to have been defined larger organization (Kelly, 1978:414).

Much of the information about post-contact Coast Miwok material cultural and lifestyles was gathered from two informants, Tom Smith (Bodega dialect) and María Copa (Marin dialect) (based on Kelly's field notes from 1931 to 1932). Settlements focused on bays and estuaries, or along perennial interior watercourses. The economy was based on fishing, hunting, and gathering, revolving around a seasonal cycle during which people traveled throughout their territory to make use of resources as they became available. Marine foods, including kelp, clams, crabs, and especially fish, were a year-round staple. Acorns were gathered in season and stored for use throughout the year. Tobacco was generously used by most men.

Dwellings were conical in shape and grass-covered. Each large village had a circular, dug-out sweathouse. Basketry techniques included both coiled and twined forms often with the use of multicolored motifs and patterns. Beginning as early as 1600 A.D. the Coast Miwok began to produce and use clamshell disk beads as money (Stewart and Praetzellis, 2003:177). The obsidian trading network was established in the Early Holocene period. Coast Miwok had a powerful sense for the value of property. Some Coast Miwok villages defended their territory against trespassers. Although land was not considered privately owned certain food-producing trees as well as hunting, fishing, and clam-digging locations were controlled by tribelets (Kelly, 1978).

By the mid-1800s Spanish missionization, diseases, raids by Mexican slave traders, and dense immigrant settlement had disrupted Coast Miwok culture, dramatically reducing the population, and displacing the native people from their villages and land-based resources. By the time of California's initial integration into the United States in the late 1840s, the Coast Miwok population had dwindled from approximately 2,000 individuals to one-eighth of its size before European contact (Kelly, 1978:414).

In 1920, the Bureau of Indian Affairs purchased a 15.45-acre tract of land in Graton for the Marshall, Bodega, Tomales, and Sebastopol Indians. This land was put into a federal trust and these neighboring peoples that included both Coast Miwok and Southern Pomo were consolidated into one recognized group called the Graton Rancheria. In 1958, the U.S. government enacted the Rancheria Act of 1958, transferring tribal property into private ownership. Forty-four Rancherias in California were affected, including the Graton Rancheria (DOI, 2008).

Throughout the remaining century, tribal members continued to protect their cultural heritage and identity despite being essentially landless. On December 27, 2000 President Clinton signed into law the legislation restoring federal recognition to the Federated Indians of Graton Rancheria. The tribe currently has approximately 1,100 members.

The Coast Miwok group is a member of the federated Indians of Graton Rancheria. The Graton Rancheria was one of 36 rancherias set aside for landless California Indians between 1906 and 1930 (NIGC, 2007). Based on the review of Graton Rancheria land, there are no known ITAs exercised by tribes within the action area. The nearest land held under a trust in the Marin, Sonoma, and Napa County areas would be the proposed Wilfred site, which is located between the city of Cotati and the city of Rohnert Park in Sonoma County. In 2007, the federated Indians of Graton Rancheria acquired the Wilfred Site, which is comprised of 11 parcels totaling approximately 251 acres. The site was proposed to be taken into trust pursuant to the Graton Rancheria Restoration Act, which requires the Secretary of Interior to accept into trust land located in Marin or Sonoma County for the benefit of the Tribe (25 U.S.C. section 1300n-3(a)). In 2008, the Assistant Secretary of Indian Affairs made a final agency determination to acquire the Wilfred Site into trust for the Federated Indians of Graton Rancheria (73 FR 89). The nearest proposed project construction activity to the Graton Rancheria would occur at a distance of approximately 12 miles away.

Wappo

The proposed pipeline routes in the northern Napa SD service area are situated within the ethnographic territory of the Wappo- a population of Yukian speaking, hunter-gatherer people with their own unique dialect and language, who occupied the northern Napa Valley and portions of the north and eastern Russian River Valley, within the Santa Rosa Plain. Geographically, the territorial area occupied by the Wappo stretched in a northwesterly direction from just north of the present-day cities of Napa and Sonoma to include the cities of Geyser, Cloverdale and Middletown at its northern extent (Kroeber, 1925:218–219, Plate 27; Barrett, 1908:264). This territory included the broad northwest-southeast trending river valleys and associated tributaries, as well as the flanking mountains of the Coastal Range and a small enclave along the southern shore of Clear Lake called *Lile'ek* by the Pomo, their neighbors to the west (Kroeber, 1925:219). Isolated from other Yukian-speaking peoples, this group was bound on all sides by other native groups: the Lake Miwok to the north, the Patwin (Wintun) to the south and east, the Pomo to the north and west, and the Coast Miwok to the southwest (Heizer and Whipple, 1971:Map 1).

The name *Wappo* is version of the Spanish term "guapo" which means handsome or brave, a title given to this group during the time of the Missions as a result of their "stubborn resistance to the military adjuncts of the Franciscan establishments" (Kroeber, 1925:217). Stephen Powers recognized the original name for these peoples as *Ashochimi*, and noted that the use of the term "*Wappo* – The Unconquerable" by this population, in reference to itself, was common practice (Powers, 1976:196).

The settlement pattern for the Wappo included permanent villages in valleys, along rivers or other waterways, organized as districts of smaller settlements or 'tribelets' around "one larger and continuously inhabited town, the center of a community with some sense of political unity" (Kroeber, 1925: 218). Tribelet chiefs were elected or appointed and resided at these major villages, and were responsible for maintaining relationships with other tribelets, as well as neighboring native tribes such as the Patwin, Pomo, and Miwok (Jones and Stokes, EDAW 2005:14–10). The Wappo tribelet chief was also responsible for the management of his or her village, performing functions of ceremonial moderator and dispute resolution (Sawyer, 1978:256–263). The subsistence strategy for the Wappo was that of the hunter-gatherer, including a heavy dependence upon the acorn and other natively procured plants and the hunting of big and small game, which included bear, deer, elk, rabbits, and birds, among others.

Material culture traits for the Wappo are shared with their neighboring cultural groups, predominantly those of the Pomo. A wide variety of stone tools manufactured from locally accessible raw material sources were an important part of the Wappo assemblage. Common tool types are projectile points, drills, knives, and scrapers of chert, basalt, or preferably, obsidian. Napa Glass Mountain, "a regionally important obsidian site and quarry, and other local obsidian sources are situated within Wappo territory, a resource which greatly enhanced the trading power of this group (Jones and Stokes, EDAW 2005:14-10, 14-11). The basketry of the Wappo was of noted quality, made from a unique weaving technique utilizing a variety of locally accessible plant materials; this technique is believed to have originated with the Pomo, the western neighboring group of the Wappo. Houses of the Wappo were constructed of a domed framework

of branches that were tied together, covered with leaves and smaller branches in the summer, and branches with mud in the winter. Animal bones as well as marine shells from coastal locations were used as a form of currency, to fashion jewelry, beads, awls, and other functional tools (Sawyer, 1978:261–262).

It is surmised that the population of the Wappo prior to European contact may have exceeded 1,000 persons before falling drastically to 40 persons in 1908. During Spanish occupation, the Wappo were notably resistant to all attempts of subjugation, from which they obtained their title. Despite this resistance, this native population was eventually brought under the control of the Mission at Sonoma, between 1823 and 1834. The remaining population was eventually moved to a reservation in Mendocino, where the majority perished, eventually leading to the closure of the reservation in 1867 (Kroeber, 1925: 221; Sawyer, 1978:258–259).

Patwin

The Salt Marsh Restoration Area may partially be within the ethnographic territory of the Patwin. The word “Patwin” is used to describe not a unified political group but a collection of tribelets whose territory centered on the southern portion of the Sacramento River Valley, from the town of Princeton on the north to the San Pablo and Suisun Bays on the south (Johnson, 1978:352). Neighboring tribes included Nisenan, Konkow, Nomlaki, Costanoan, Plains Miwok, and Pomoans. Patwin tribelets traded among themselves and with these neighboring tribes, exchanging, among other things, bows, obsidian, shell beads, and otter pelts.

The Patwin were organized into autonomous tribelets, each consisting of a primary village and several satellite villages. Each village was headed by a hereditary chief (Johnson, 1978:354). Residence after marriage was matrilocal and the household was the basic social unit. The Patwin hunted, fished, and gathered salmon, waterfowl, deer and other mammals, seeds, and acorns being important food sources. Virtually unique to Northern Californian peoples, the Patwin practiced the Kuksu cult system, which featured a number of secret societies into which young men were initiated (Johnson, 1978:353).

Historic Background

This section presents a discussion of the historic period as it generally applies to the region, as well as an individual synopsis of major historical events within the respective modern-day California counties in which the action area is located (i.e., Sonoma, Napa, and Marin counties).

Regional Overview

First European contact with the Northern California region has often been associated with the landing of Sir Francis Drake, at some point north of the Spanish claim of Point Loma in 1579 (Bancroft, 1886b; Wagner, 1926; Heizer, 1947). The precise location of this landing is not known, although it is often claimed that Drake entered and moored off Drakes Bay at Point Reyes. The next recorded European presence occurred when the Portola expedition entered the area while in search of Point Reyes in 1769. Beginning in 1806 Russian presence increased, particularly to the northwest of the current action area, eventually culminating in the

establishment of a permanent trading outpost for the Russian-American Company at Fort Ross in 1812. Spain controlled the Alta California territory, including the northern San Francisco Bay area, until the establishment of the independent government of Mexico in 1821. Francisco Castro and Father Jose Altamira in 1823 led a Spanish expedition to the area in an effort to scout for potential mission sites and as a result, the mission at Sonoma (San Francisco-Solano Mission) was founded in that same year. The mission cultivated herds of livestock and attempted to convert the local native population with little success. Secularization of mission lands soon followed the transfer of control to the Mexican government, who in 1833 passed a law beginning a period of large, private land-ownership known as Ranchos. It was intended that secularized mission holdings be reverted to the Native Californian population that originally occupied the lands, however most of the territory became the holdings of Mexican and American industrialists. Following the end of the Mexican-American War in 1848, California was admitted to the Union in 1850, becoming the 31st state within the United States of America. Marin County, Sonoma County, and Napa County are among the 27 original California counties established in 1850.

Marin County

The name for this county is purportedly derived from that of a famous Lacatuit Chief, whose people originally occupied this northern San Francisco Bay territory (Bingham, 1906:89). Following the alleged arrival of Sir Francis Drake, Sebastian Rodriguez Cermeno anchored off the Coast of Marin County in 1595. A Portuguese explorer sailing for Spain, Cermeno was ordered to explore more of the coast of California and it was during this trip that his ship, the San Augustin, was shipwrecked at Drakes Bay. While his crew built a new vessel, Cermeno completed modest exploration of the Marin County area (Heizer, 1941). Sebastián Vizcaíno was the next explorer to drop anchor at Drake's Bay, when he arrived in 1603 (Chapman, 1920). Permanent settlement in Marin County was eventually achieved in 1817 when the Mission San Rafael was established by Padres Amaroso and Cijos (Anonymous, 1891). During the Mexican Period, the land within Marin County was divided into several ranchos.

As with many other counties in California, the Gold Rush inspired elevated migration of peoples and industry into Marin. Saw mills opened to take advantage of the numerous Redwood stands in the region, as did paper mills. Cattle ranching, fisheries, and dairies sparked the eventual arrival of the North Pacific Railroad that greatly increased the Euroamerican population of the county. By the late 1850s several prominent Marin County cities were well established, including Sausalito, San Rafael, and Novato. In 1853 a state penitentiary was constructed at San Quentin which is still in use today.

Brief History of Hamilton Air Force Base. The U.S. Army Air Corp (now the U.S. Air Force) selected the Marin County Airfield just south of Novato near San Pablo Bay as the location of a new air base in the late 1920s (Hamilton Air Field) to accommodate four bomb squadrons and their personnel. Construction at Hamilton Field began in July 1932, and was completed in May 1935. Captain Howard B. Nurse, Construction Quartermaster, supervised the design and construction. Nurse departed from traditional base design by rendering the buildings in the Spanish Eclectic (Spanish Revival) style then popular in California. The first squadrons at the air field were the 70th Service Squadron and the 7th Bombardment Group, comprised primarily of

Martin B-10s and B-12s. By 1940, the air base had grown to accommodate over 4,000 personnel. During World War II, Hamilton Field was rapidly expanded to a wartime status, with construction of additional barracks, mess halls, administration buildings, warehouses, schools, hospital and other structures. From 1946 until 1973, air defense was Hamilton Air Force Base's primary mission. Hamilton Air Force Base was decommissioned in 1974, and at this time the airfield was transferred to the Army as Hamilton Army Airfield, the housing to the Navy, and a 411-acre parcel to the General Services Administration for public sale. The General Services Administration public sale occurred in 1985, and the 1988 Base Realignment and Closure closed the Army airfield. Following closure, many of the facilities at the air field have been reclaimed by the city of Novato and county of Marin for public use. Hamilton Field was designated a National Register Historic District in 1998, which includes the hangars, senior housing, theater, hospital, enlisted men's barracks, the bachelor's officer quarters and the swimming pool.

Sonoma County

In 1775 prior to the establishment of the mission, Spanish contact with Sonoma County occurred when Lieutenant Juan Francisco de la Bodega y Quadra entered the aptly-named Bodega Bay (Anonymous, 1891). Sonoma County hosted Russian, Spanish, and other European settlers during the early historic-period, as well as a drastically impacted Native population; the county was within the territory originally controlled by the San Francisco-Solano Mission at Sonoma. With the transition from Spanish to Mexican control, the Mexican government established various military outposts within Alta California one of which was the El Presidio de Sonoma (Sonoma Barracks)—founded in 1836 to board troops under the direction of General Mariano Guadalupe Vallejo. This troop presence was strategically selected in an effort to counter Native American resistance as well as the slow matriculation of Russian control from the north. General Vallejo owned the large Rancho Petaluma and between 1834 and 1840 built the largest adobe in Northern California, the Petaluma Adobe, in the western foothills of the Sonoma Mountains. Vallejo also owned Rancho Agua Caliente along Sonoma Creek adjacent to the town of Sonoma. In 1846, sparked by rumors of looming action by the Mexican government against settlers, a small group of recent Euroamerican immigrants hoisted a flag with a bear and a star in the town center of Sonoma. The "Bear Flag" symbolized the formation of a California Republic that was independent from Mexico. Rebels from this movement occupied the Sonoma Barracks adobe and captured General Vallejo. The independent California Republic was short-lived as war was declared between Mexico and America, with the majority of the "Bear Flaggers" shifting their support behind the American effort to bring California into the Union as a state.

As the American Period began in the late 1840s, the influx of new economies and the process of secularization resulted in an increase in settlement and the development of farming, ranching, and businesses in Sonoma County. It was in the mid-nineteenth century that wine grapes from Europe were first successfully grown. Since its formation, Sonoma County has been a center for viticulture, agriculture, shipping ventures, and larger commercial activities, which encouraged the formation of and prosperity of cities such as Sonoma, Petaluma, Santa Rosa, and Healdsburg.

Brief History of the City of Sonoma and Sonoma Plaza. In 1823, Mission San Francisco Solano de Sonoma was established by Father Junipero Serra. It was the only California mission

installed after Mexican independence from Spanish rule. Sonoma was first acknowledged by Mexico as a city in 1835. Mariano Guadalupe Vallejo, a lieutenant later promoted to General, led the transformation of Sonoma into a Mexican pueblo. Vallejo oversaw construction of the eight-acre central Plaza, which is the largest Mexican-era plaza in California, as well as the street grid, including the 110-foot wide Broadway which leads directly to the plaza (now called Sonoma Square or Sonoma Plaza). When Vallejo's nephew, Juan Bautista Alvarado, was named governor of the Mexican state of Alta California in 1838, Vallejo was named military governor of the state. After California achieved statehood in 1850, Vallejo was elected a state senator and lobbied to maintain Sonoma as the county seat; however, Santa Rosa won the honor in 1854. With U.S. rule came the appropriation of many land holdings, and Vallejo lost almost all of his real estate, which once amounted to 7 million acres. His home on West Spain Street was all that remained of his once large land holdings when he died in 1890. Sonoma was incorporated as a U.S. City in 1881.

Sonoma Plaza, encompassing some 80 acres and 28 buildings, including the Mission San Francisco Solano, Captain Salvador Vallejo's Casa Grande, the Presidio of Sonoma, and many other buildings along the periphery of the Plaza, was listed in the National Register of Historic Places in 1975 as an historic district significant for its association with historic events, as well as for its architecture. The district has a period of significance from 1829 to 1849, and represents the Mission/Spanish Revival and Italianate styles of architecture. Much of this area also comprises the Sonoma State Historic Park, which consists of six historic architectural resources generally on the north side of the Plaza; the Mission San Francisco Solano de Sonoma, the Blue Wing Inn, the Sonoma Barracks, the Toscano Hotel, as well as La Casa Grande and Lachryma Montis, the homes of General Mariano Vallejo. The boundaries of the National Register Historic District were expanded by an additional 20 acres and numerous buildings in 1992 to areas south and east of the town plaza, along Broadway and the north side of East Napa Street. The expanded Broadway Historic District has a period of significance from 1850 to 1924, and represents the Queen Anne and Italianate styles of architecture.

Napa County

With Alta California's independence from Spain and the beginning of Mexican control, Napa County was subdivided into twelve ranchos: Humana Carne, Catacula, Caymus, Chimiles, Entre-Napa, Le Jota, Locoallomi, Napa, Tulucay, Yajome, Huichia, and Mallacomeato (Anonymous, 1891). The first non-Spanish American settler to the Napa Valley area was George C. Yount in 1831. Originally intending to travel to the Pacific Ocean to trap otter, Yount instead stopped early and worked as a carpenter for General Mariano Vallejo. In 1836, Yount received the 12,000-acre Rancho Caymus land grant, and in 1842 applied for and received the Rancho La Jota land grant on Howell Mountain.

With the discovery of gold in 1848 and the subsequent gold rush of the early 1850s, the population of California grew exponentially. As a previously established American-occupied area, Napa County drew in many of the miners disillusioned by the gold fields and the severe winter in the Sierra Nevada. Saw mills, timber harvesting, and cattle ranches provided employment within Napa Valley. Between 1840 and 1845 many emigrant American families settled in the Napa Valley area. It was in 1848 that Napa City was laid out by Nathan Coombs on

the property that he acquired from Nicholas Higuera's Rancho Entre-Napa. The burgeoning population helped build Napa City from a tent city along Main Street to the primary business and economic center for the Napa Valley it is today. By 1853 the first roads began to appear on Howell Mountain. Old Howell Mountain Road became the stagecoach route between the Napa Valley and Lake County. In the 1860s and 1870s small groups of settlers began planting vineyards in the Napa Valley area and today, Napa County is best known for its world-renowned wine production.

Brief History of Stone Arch Bridges in Napa County. Napa County has an unusual history of stone arch bridge construction that is distinctly different from the rest of California (JRP, 1999). During the 1860s stone arch bridges were a common construction type throughout the United States. Beginning in the 1890s other materials, particularly steel, became more widely used. The exception was Napa County where stone arch bridges continued to be built through the 20th century. Explanation for this trend includes the amount of early settlers in the county who were European immigrants, particularly from England and Italy, who had traditional experience with stone masonry construction. Additionally the hills surrounding the Napa Valley harbor an abundance of commercial-grade stone ideal for bridge and building construction material. Napa County's agricultural dominance produced a high amount of day laborers who could provide the backbone for stone masonry construction. Local historians also emphasize that individuals, in particular County Supervisor Achilles F. Grisby and County Surveyor and City Engineer Oliver Buckman, were strong advocates of stone bridge construction. Stone masonry maintained dominance in bridge construction through the mid-1910s in Napa County when techniques began to trend with the rest of the state using steel and concrete.

Brief History of Napa State Hospital. Due to overcrowded conditions at the Stockton Asylum-California's first State Hospital, a site was selected in 1872 in Napa County for a new State Hospital. Initially, 192 acres of land were purchased for $11,506 from Don Cayetano Juarez. The site was a part of the Mexican Land Grant, Rancho Tulocay, that was received from General Mariano Vallejo. Additional land was acquired over the years bringing the total to over 2,000 acres. The same year that the land for the new hospital was acquired, work began on the construction of the 500-bed, four-story, Gothic-style hospital building. The newly-completed Napa State Hospital opened to its first patients in November in 1875. At this time, the hospital property extended from a wharf on the Napa River to the eastern edge of Skyline Park, allowing for the development of dairy and poultry ranches, vegetable gardens, orchards and other farming operations necessary to make the hospital as self-sufficient as possible. Farming operations ceased in the late 1960's. Napa Valley College, Kennedy Park and Skyline Wilderness Park now occupy most of this land. The hospital population peaked in 1960 with over 5,000 individuals in residence and then steadily declined with the arrival of psychotropic medications and the development of County-based programs. Although the hospital underwent numerous later additions and alterations since its initial construction, the original complex of buildings was determined to be eligible for the National Register as an individual property through a survey evaluation.

Methods

The effort to identify cultural resources in the APE consisted of researching the archives, conducting field surveys, and contacting Native Americans organizations/individuals.

Archival Methods

A records search was conducted at the NWIC at Sonoma State University in April 2008 (File No. 07-1558). Most topographic quadrangle maps of the NBWRP could be examined with the exception of Napa. The Napa quadrangle base map was reviewed on April 20, 2008. Additional records were accessed by reviewing the 7.5-minute quadrangle base maps. Further research was conducted using the files and literature at ESA. The records search included a quarter-mile radius of the APE and was completed in order to (1) determine whether known cultural resources have been recorded within or adjacent to the APE; (2) assess the likelihood of unrecorded cultural resources based on historical references and the distribution of environmental settings of nearby sites; and (3) develop a context for identification and preliminary evaluation of cultural resources.

Included in the review were the California Inventory of Historical Resources (California Department of Parks and Recreation, 1976), California Historical Landmarks (1990), California Points of Historical Interest (1992), and the Historic Properties Directory Listing (2008). The Historic Properties Directory includes listings of the National Register and the California Register of Historical Resources, and the most recent listing (March 7, 2008) of the California Historical Landmarks and California Points of Historical Interest. Historic-period and geological maps were also reviewed including Sale Map No. 8 of Salt Marsh and Tide Lands situated in the County of Marin (1871), Illustrated Atlas of Sonoma County, California (Reynolds and Proctor, 1898), and a historic U.S. Geologic Survey (USGS) topographic map of San Francisco and vicinity (1915).

Survey Methods

A pedestrian and cursory survey (on-foot or windshield) was conducted in the APE. The intensity of the survey used was dependent on the environmental conditions (exposed ground surface verses paved/developed) and predicted archaeological sensitivity of a given area.

Because the proposed pipeline routes are predominantly located within established, paved road rights-of-way, standard pedestrian methods for identifying surface evidence of archaeological sites are less valuable and effective in obtaining positive results. Roadways with large shoulders and segments of roadways that intersected with perennial or intermittent streams and creeks were more closely examined by walking and examining the surface. Segments of pipeline routes that diverted off roads and onto parcels of private land was studied using a pedestrian survey.

ESA archaeologist Heidi Koenig and Nick Tipon of the Federated Indians of Graton Rancheria (FIGR) conducted a supplemental survey of six locations within the APE on September 4, 2008. The survey included the areas previously delineated as sensitive for cultural resources and incorporated comments and perspective from Nick Tipon towards known cultural resources. The six locations included the vicinity of P-21-000174 in the LGVSD Service Area; P-21-000551 in the Novato SD service area; P-49-002054 and P-49-003299 along Arroyo Seco in the SVCSD

service area; P-49-1042 near Fowler Creek in the SVCSD service area; and P-49-000130 near Vallejo's home in the SVCSD service area. The survey methods, results, and corresponding references are provided in the Survey Findings section.

Native American Consultation

Under NEPA, cultural institutions, lifeways, culturally-valued viewsheds, places of cultural association, and other sacred places and trust assets are considered cultural resources (40 CFR 1501.2), Section 106 of the NHPA and Executive Order 12898 (Executive Order 13175, Executive Order 13007, Native American Graves Protection and Repatriation Act). Executive Order 13007 specifically addresses sacred sites.

The Native American Heritage Commission (NAHC) was contacted on April 28, 2008 to request a database search for sacred lands or other cultural properties of significance within or adjacent to the APE. Based on a response received on April 28, 2008, the sacred lands survey did not identify the presence of cultural resources in the APE. The NAHC provided a list of Native American contacts that might provide further information on cultural resources for the action area. Each person or organization identified by the NAHC was contacted by telephone on April 15, 2008.

A meeting was held on June 27, 2008 between ESA archaeologist Heidi Koenig, California State Parks archaeologist Breck Parkman, Nick Tipon and Ken Tipon of the Federation of Indians of Graton Rancheria (FIGR). The meeting was held primarily to provide a general project description for the NBWRP to the agencies and to outline the preliminary results from the records and literature review as well as initial survey results were outlined.

Additional consultation occurred when ESA archaeologist Heidi Koenig and Nick Tipon of the Federated Indians of Graton Rancheria (FIGR) conducted a supplemental survey of six locations within the APE on September 4, 2008. The purpose of this effort was to introduce Mr. Tipon to areas previously delineated as sensitive for cultural resources and incorporate any of his additional comments and perspective towards known cultural resources. Consultation with the NAHC is ongoing.

Records Search Results

Archaeological Resources within the Records Search Area

Based on the records search, 210 archaeological sites have been recorded within the records search area. Archaeological resources in the records search area are comprised of prehistoric archaeological sites (including but not limited to concentrations of obsidian and chert flaked-stone tools [e.g., projectile points, knives, scrapers] or toolmaking debris; culturally darkened soil ["midden"] containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment [e.g., mortars, pestles, handstones, or milling slabs]; battered stone tools, such as hammerstones and pitted stones) and historic-period archaeological resources (including but not limited to stone walls; filled wells or privies; deposits of metal, glass, and/or ceramic refuse, and out-of-use

transportation features such as railroad berms and roads)[1]. Because cultural resources surveys are on-going this list is only applicable at the time of this publication. Cultural resources are recorded continuously and any new research efforts would be required to be updated as appropriate.

Archaeological Resources within the ASA

Table 3.12-2 shows the archaeological resources within the ASA in the Member Agency service areas that are discussed below. The resources include both prehistoric and historic-period archaeological sites as well as architectural/structural properties.

TABLE 3.12-2
CULTURAL RESOURCES LOCATED WITHIN THE ARCHAEOLOGICAL ASA

Service Area	Site Age	Primary Site Number	Trinomial	Site Description
LGVSD	**Prehistoric**	P-21-000174	CA-MRN-149	Shell midden
Novato SD	**Prehistoric**	P-21-000026	CA-MRN-359	Shell midden
	Prehistoric	P-21-000201	CA-MRN-176	Shell midden
	Prehistoric	P-21-000216	CA-MRN-191	Shell midden
	Prehistoric	P-21-000217	CA-MRN-192	Shell midden/Lithic scatter/Burials
	Prehistoric	P-21-000298	CA-MRN-319	Shell midden
	Prehistoric	P-21-000376	CA-MRN-414	Petroglyphs
	Prehistoric	P-21-000377	CA-MRN-415	Bedrock milling station
	Prehistoric	P-21-000551	CA-MRN-502	Shell midden
	Prehistoric	P-21-000657	CA-MRN-444	No record
	Prehistoric	P-21-000658	CA-MRN-445	No record
	Prehistoric	P-21-000659	CA-MRN-446	No record
	Prehistoric	P-21-000660	CA-MRN-447	No record
SVCSD	**Multicomponent**	P-49-000130	CA-SON-132/H	Shell midden/Artifact concentration
	Multicomponent	P-49-002806	CA-SON-2316	Shell midden/Historic-period residence
	Historic-period	P-49-000346	CA-SON-375H	Sonoma Mission - Artifact concentration
	Historic-period	P-49-001344	CA-SON-1439H	El Dorado Hotel - Artifact concentration
	Historic-period	P-49-001367	CA-SON-1464H	Artifact concentration
	Historic-period	P-49-002305	CA-SON-1806H	Artifact concentration/Foundation
	Historic-period	P-49-002367	CA-SON-1900H	Artifact concentration/Foundation
	Historic-period	P-49-002372	CA-SON-1912H	Artifact concentration
	Prehistoric	P-49-000193	CA-SON-221	Shell midden
	Prehistoric	P-49-000345	CA-SON-374	Shell midden
	Prehistoric	P-49-001042	CA-SON-1114	Lithic scatter
	Prehistoric	P-49-001399	CA-SON-1499	Shell midden
	Prehistoric	P-49-001693	CA-SON-1304	Shell midden
	Prehistoric	P-49-002053	CA-SON-135	Shell midden
	Prehistoric	P-49-002054	CA-SON-136	Shell midden
	Prehistoric	P-49-003299	CA-SON-2412	Shell midden
Salt Marsh Area	**Historic-period**	P-28-000722	CA-NAP-810	Railroad grade
Napa SD	**Multicomponent**	P-28-000001	CA-NAP-860/H	Shell midden/Historic-period ranch

NOTE: Primary Site Number and Trinomial Numbers are assigned by the California Historical Resources Information System

[1] The cultural resources located in the records search area are provided in the technical document prepared for cultural resources (ESA, 2008). The cultural resource-list would assist future research to delineate areas of sensitivity for the full development of Alternative 1; Alternative 2; and Alternative 3.

LGVSD

Site P-21-000174 is a shell midden that was originally recorded by N.C. Nelson in 1907. The site was described as a "shellheap" located on a "rocky point, the most prominent to the north after rounding the bend forming the entrance to the Miller Valley basin." Adjacent to marshland at the time, the site extended approximately 125 feet along the bank, 18 to 20 feet above the marsh level, and five to six feet back from the edge of the marsh. The shell fragments were considered small and the soil had "an unusual amount of earth and rock in its composition." One charmstone was collected.

The exact location of this site is uncertain. In 1979 disturbed midden material was recorded south of the NWIC-mapped location of P-21-000174 (ARCS, 1979). The material was designated as "N-2" but a subsequent survey in 1991 was unable to relocate the deposit. An additional survey in 1995 did not locate cultural materials at any of the various suggested locations (DON, 1995). Filling and grading activity in the area has likely eliminated any surface components to this site. Because of the potential for a subsurface deposit, the area is considered generally sensitive for prehistoric resources.

Novato SD

Site P-21-000026 is a prehistoric shell midden with human remains. The site may be the village of *tcōke'ttce* (Barrett, 1908:309) was first recorded by N.C. Nelson in 1907 (Nelson Site MRN-171). Several subsequent recordings have occurred including one subsurface exploration during construction activities (Bieling, 1994; Davis, 1959; Roop and Haslam, 1981). The dark midden soil contains charcoal, heat-affected rock, lithic debitage, shellfish remains, tools and tool fragments, and at least one human burial. Although there is some surface manifestation of the site, much of it has been disturbed by previous construction and/or is found up to 5 feet below the present-day ground surface.

Site P-21-000201is a shell midden that was originally recorded in 1907 by N.C. Nelson. In 1907, the site was located on the edge of a marsh northwest of Deer Island on a hill slope above a wagon road. The 30,000-square foot site was seven to eight feet above the marsh level and six to seven feet high. The site had been flattened by cultivation and contained fine materials and no clam shell.

In 1976 the site was relocated and described as an extensive midden deposit with obsidian and chert debitage and tools (Guruswami, Naidu, and Haslam, 1978). The site had been rediscovered during excavation for road construction and was buried at a depth of three to six feet of fill. The site record noted that several midden deposits and petroglyphs are located on nearby Deer Island. An excavation plan was proposed for the site in the Environmental Impact Report completed for the Woodlands Residence Subdivision. It is unknown at the present time whether the activities were carried out.

Site P-21-000216 is a shell midden recorded by N.C. Nelson in 1907 at the head of a "long straight marsh arm near the northeast extremity of the Novato-Black Point range." The site was approximately 6,600 square feet in area and one to three feet deep. Nelson noted that the site had

likely been "artificially reduced." There have been no subsequent recorded archaeological studies on this site.

Site P-21-000217 is a shell midden with a lithic scatter, a bedrock milling station, and burials. The site was originally recorded by N.C. Nelson as Nelson's 197. The site has been revisited several times.

Site P-21-000298 is a shell midden. The site was first recorded by N.C. Nelson in 1907. Nelson described the site as "insignificant covering only about 100 square feet" located north of the junction of the Sonoma and Petaluma railroad lines. The site has apparently been destroyed (personal communication between Steve Dietz and J. Origer, 1978).

Site P-21-000376 is petroglyphs near Dear Island. The site contains two schist outcrops with at least 4 pecked circles and ovals (Miller, 1974a).

Site P-21-000377 is a bedrock milling station mapped at the NWIC within the ASA. The site is a 2.8 by 0.57 meter basalt outcrop containing at least 41 cupules of various sizes (Miller, 1974b).

Sites P-21-000657, P-21-000658, P-21-000659, and P-21-000660 were recorded by Katherine Flynn in 1976 despite lack of official site record forms submitted to the California State Parks and Recreation Department (site record coordinator for Marin County at that time).The exact location and nature of each site are uncertain. It appears that three sites were recorded on an 88-acre parcel proposed for residential development (Flynn, 1976). One of the sites was P-21-000551. Ms. Flynn noted the replication of P-21-000551 with a site in Bolinas and temporarily numbered the site Q-SME-1. Two additional lithic scatters were also recorded (Q-SME-2 and Qu-SME-A). It is unclear why the fourth trinomial was assigned. Ms. Flynn noted in a follow-up letter from 1981 that at least two of the sites (Q-SME-1 and Q-SME-2) were covered or removed by construction (Flynn, 1981).

SVCSD

Site P-49-000130 is a shell midden and historic-period artifact concentration. The site is outside the delineated boundaries for the APE. However, the importance of the site as one of the only prehistoric sites in the city of Sonoma and the probable association with the Native American population that worked for and lived near General Mariano Vallejo's Lachryma Montis (Parkman, 2008), extended the records search and survey effort to include the location. The site contains a prehistoric midden deposit with obsidian, chert, and basalt lithics, shell, and heat affected rock. The prehistoric component is approximately 225 square meters in area. Historic-period artifacts include glass and ceramic fragments. Site disturbance includes the construction of a pump house and pipelines, a power pole, fences, and cattle grazing (Thompson, 1977; Origer, 2006).

Site P-49-000193 is a shell midden, human remains, and bedrock milling station and was originally recorded by N.C. Nelson in 1907. The site was destroyed at the time of recording; the material was being used for a levee along the adjacent creek bank. A fragment of human bone was observed by Nelson. Several skeletons and artifacts were observed by the "Italians who took the material away" (Nelson, 1907).

Site P-49-000345 is a prehistoric shell mound (Bennyhoff, 1952). Historic-period ceramic fragments were also recorded at the location. The site has not been relocated since its original recording.

Site P-49-000346 includes the Sonoma Mission (established in 1823) as well as associated deposits from subsequent uses including a saloon, barn, city dump, etc. The location was recorded on a site survey record in 1952. No subsequent site records have been submitted for the location although numerous studies have been completed in the following years (Bennyhoff and Elasser, 1954; Felton and Farris, 1996; Treganza, 1956).

Site P-49-001043 is a shell midden. This extensive prehistoric site has been recorded several times (Gerike and Parkman, 1980; Martorana, 2005; Ramiller and Rumph, 1978). Auger testing has been conducted to delineate site boundaries (Benson and Peron, 1981; Meyer, 2007). The site appears to be at least 10,000 square meters in area and includes midden soil with obsidian, chert, chalcedony, and basalt debitage and tools, heat-affected rock, ground stone, and the remains of at least three human burials. The site lies outside of the ASA, however the extensive nature of the site and presence of human remains indicates a heightened sensitivity for prehistoric sites in the vicinity.

Site P-49-001344 is a historic-period site consisting of the El Dorado Hotel and associated features in the rear lot. A refuse-filled pit was recorded with preliminary dates of 1850s–1860s. An adobe wall foundation was also recorded. At the time of recording the deposit was at least 75% destroyed (Praetzellis, 1984).

Site P-49-001367 is a historic-period artifact concentration (Bramlette, 1985). Artifacts types recorded include glass bottles, cuts nails, an iron, glass fragments, and metal debris located in a 25 square meter area.

Site P-49-001399 is a midden and light lithic scatter (Jordan, 1985). Constituents of the site include a grayish black midden soil with clamshell, heat-affected rock, obsidian flakes, one obsidian projectile point fragment, and one possible chert flake. Preliminary analysis by the site recorders indicates a site date earlier than A.D. 900.

Site P-49-002053 is a shell midden. This site was recorded by Nelson in 1907. The NWIC does not have any information other than location of the site.

Site P-49-002305 has a historic-period artifact concentration and foundation. The site was recorded in 1990 (Praetzellis, 1990a). The site included a building foundation pad; the house was reportedly constructed circa 1890 and was removed from the location in 1988. A large artifact concentration remained that included 19th century materials such as white improved earthenware fragments, glass fragments, butchered food bones, and brick fragments.

Site P-49-002367, with historic-period artifact concentration and foundation, represents the location of the “Espindola Adobe” as described by Hendry and Bowman in 1942 (Praetzellis, 1990b). Surface indicators and test trenches revealed a light scatter of mid to late 19th century glass and ceramic fragments.

Site P-49-002372 represents the artifacts recovered during test excavations on a Sonoma block (Praetzellis, 1990c). The site consists of five features including sheet refuse and hollow artifact-filled features dating from the late 19th–early 20th centuries, and one prehistoric obsidian flake. Historic-period artifacts included glass and ceramic fragments, tool fragments, ink bottles, stoneware, and food bone.

Site P-49-002806 includes a historic-period home (Harry Coops House) and a prehistoric midden deposit with shell fragments, heat-affected rock, obsidian debitage, and tool fragments (Evans, 1998). The house was constructed circa 1880 (Sonoma League for Historic Preservation #49-5476-248). The prehistoric component extends from Sonoma Creek towards the house.

Site P-49-003299 is a well-developed midden deposit with shell fragments (predominately bay mussel), heat-affected rock, and a few obsidian fragments (Origer and Associates, 2005). The site measures approximately 26 by 40 meters.

P-28-000772 is an abandoned railroad bed that extends from Buchli Station Road to Milton Road in the Salt Marsh Area. The segment was first recorded in 1989 and was described as being a filled levee-like feature approximately nine to 10 feet wide at the top, 27 to 30 feet wide at the base, and about six feet high (Soule, 1989). A pile of 60 to 70 railroad ties in varying degrees of decomposition were located at some point adjacent to the bed. A milled-wood trestle was recorded in a subsequent survey (Psota and Bieling, 1992).

Napa SD

The P-28-000001 is the Somky Property, a multicomponent site. The site includes a historic-period ranch complex and a prehistoric midden deposit (Tinsley, 2005; Thompson, 2005). The ranch complex is a two-story Colonial Revival-style farmhouse constructed in 1911and associated structures including a worker’s cabin, an ornamental fountain, and a Quonset hut. Historic-period refuse including glass, white improved earthenware, and a saw-cut bone were also recorded. The prehistoric component is located on the southwest section of the Somky property near an outbuilding and consists of a moderate to dense scatter of obsidian debitage and one obsidian corner-notched projectile point. The extant structure was determined eligible for the California Register; it was recommended that the prehistoric component be formally evaluated for its eligibility by the identification of intact archaeological deposits and recognized data potential (Bartoy, Rosenthal, and Holson, 2005).

Archaeological Resources within the APE

Novato SD

Site P-21-000551 is a well-developed midden deposit and lithic scatter with human remains. The site was originally recorded as CA-MRN-372 by R.L. Edwards and T. King in 1967 and reportedly investigated by San Francisco State College (Flynn, Duddy, and Gerike, 1980). The trinomial CA-MRN-372 was also assigned to a site in Bolinas. Therefore, the San Marin Drive site was reassigned the number CA-MRN-502. In 1980 the site was rerecorded within a newly bladed construction site for a residential development. The site was described as a dense shell

midden containing obsidian and chert debitage and tools, heat-affected rock, groundstone, hearths, and at least one human burial. One possible bedrock milling station was also noted. Historic-period refuse was also recorded including glass, ceramic, tin, and wire nails. The 1980 site record suggests that a testing program was submitted to the City of Novato and that local Native American representatives had been contacted about the human remains.

SVCSD

Site P-49-001042 is a site with sparse obsidian scatter in a 150 by 20 meter area (Ramiller and Rumph, 1978). Subsequent survey did not relocate the site (Flynn, 1980). Flynn reported that the light scatter of obsidian may have been transported to that location by farm equipment from the more substantial site of CA-SON-1115. A cultural resources monitor was recommended during ground disturbance in the vicinity.

Site P-49-001693 is a dark clay midden containing obsidian debitage and one small obsidian blade. Some heat-affected rock and a ground stone were also recorded (O'Brien and Roop, 1980). The site may be a disturbed portion of CA-SON-221 recorded by Nelson in 1909. The site was heavily disturbed at that time due to vineyard cultivation, and augering of the site revealed no stratigraphy at depths of 20 to 30 centimeters. The actual depth of the site was cited as unknown. In addition, the alluvial and fluvial deposition in this area is high given the proximity to two branches of Fowler Creek.

Site P-49-002054 is a shell midden recorded by Nelson in 1907. The NWIC does not have any information other than the location.

Napa SD

Site P-28-000622 is a light lithic scatter (Baker, 1988). Approximately 10 to 12 obsidian flakes were noted in a 25 by 6 meter area between a small ranch road and a fence. One obsidian biface tool fragment was recorded. No other cultural materials were noted. Since the time of recording a bridge has been replaced and the ranch road has been paved. It was recommended that an archaeologist be present during ground-disturbing activities in the area although it is not currently known whether the ground disturbing activities occurred.

Architectural/Structural Resources within the Architectural APE

There are 66 recorded historic architectural properties listed in or eligible for listing in the National Register within the search radius that have National Register ratings (status codes) between "1" (listed on the National Register) and "5" (eligible for local listing). The majority of the resources (61) are located in downtown Sonoma within the SVCSD service area. The resources within each Member Agency service area are described below. None of these resources are located within the immediate APE.

LGVSD

Hamilton Field Enlisted Barracks. Recorded historic architectural resources adjacent to the LGVSD service area APE are the Enlisted Barracks located on South Palm Drive, and the

Hangars on Hangar Avenue, at Hamilton Field in Novato. The structures were built in 1933, and were assigned a National Register status code of "2S2," which indicates that they are individual properties determined eligible for the National Register through the Section 106 process of the National Historic Preservation Act (NHPA). The structures are also listed in the California Register.

SVCSD

Sonoma Plaza/Broadway Historic District. There are 61 recorded historic architectural resources that are listed in or determined eligible for listing in the National or California registers located adjacent to SVCSD service area APE. These resources are primarily clustered around Sonoma Square in downtown Sonoma, which has a high concentration of city's brick and wood frame commercial buildings dating from the late eighteenth to the early twentieth centuries. The majority of the recorded historic architectural resources consists of commercial structures located along Broadway leading to Sonoma Square, and are within the Broadway Historic District. Several additional recorded historic resources in the SVCSD service area APE are located on 1st Street West along the western perimeter of Sonoma Square. Fewer historic architectural resources, such as residences or ranches, are located further outside the Plaza, such as along Arnold Drive, Denmark Street, Napa Road, and Watmaugh Road.

Napa SD

Four recorded historic architectural resources are located adjacent to the Napa SD service area APE. These include the 1875 Napa State Hospital, and three historic ranches. The Napa State Hospital, located at 2100 Napa-Vallejo Highway, was completed in 1875, with numerous later additions and alterations. This complex of buildings was assigned a National Register status code of "3S," which indicates its eligibility for the National Register as an individual property through a survey evaluation. Kreuzer Ranch at 167 Kreuzer Lane in northern Napa County dates from 1890, and was assigned a National Register status code of "1S," (i.e., an individual property). Two additional ranches, the 1875 Bergstrom Ranch and the 1916 Mount George Farm Center located at 1225 and 3275 Hagen Road, respectively, were assigned National Register status codes of "3S," (i.e., individual properties through a survey evaluation).

No other recorded historic architectural resources listed in or eligible for listing in the National Register or California Register were identified within or adjacent to any of the architectural APE for the remaining services areas, including the Novato SD service area, the Salt Marsh area, or any associated WWTPs. Because the NBWRP components would be primarily located within public rights-of-ways, no significant direct or indirect impacts to eligible resources, if they exist, would occur. Therefore, an intensive architectural survey and evaluation would be of little or no value to the understanding of the project's potential effects on such resources. However, an intensive architectural survey and evaluation was conducted for four historic-period bridges within the Napa SD service area (described below) due to their potential of being affected by the project.

Survey Findings

Newly recorded sites were documented on California Department of Parks and Recreation forms 523. Efforts to relocate previously recorded sites during the 2008 survey effort were documented on DPR 523L Continuation forms. All updated and new site records are provided in the Cultural Resource Technical Report (ESA, 2008).

LGVSD

The LGVSD service area was surveyed by an ESA Registered Professional Archaeologist and Nick Tipon of the FIGR on September 4, 2008. The APE in the LGVSD service area is primarily paved with no surface visibility. Adjacent locations with limited surface visibility such as landscaped areas were reviewed for cultural materials, especially in the recorded vicinity of the P-21-000174 site.

Several locations been suggested for the site P-21-000174. No surface indications of cultural materials were observed during the project survey. A previous survey indicates that the site has likely been destroyed (DON, 1995). The area is considered as generally sensitive for archaeological resources.

The Northwestern Pacific Railroad corridor was surveyed for the Sonoma Marin Area Rail Transit Project by Garcia and Associates (2004). The railroad was recorded as a historic-period cultural resource (site P-21-002618) and was determined to be not eligible for either the National or California registers. It was recommended that individual features or elements associated with the railroad be evaluated for their eligibility. No eligible features or elements are located within the LGVSD service area APE.

Novato SD

Based on a survey of the Novato SD WWTP site, (William Self, 2004), no cultural resources were recorded. An ESA Registered Professional Archaeologist surveyed the proposed pipeline routes in the Novato SD service area on May 20, 2008. The area is primarily in a residential/urban environment. Paved sidewalks and landscaping obscure visibility in segments west of Highway 101 with the exception of Arroyo Avichi Park. East of Highway 101 the setting varied from urban to rural residential with a narrow right-of-way. No prehistoric or historic-period archaeological resources were recorded during this survey effort.

One archaeological site has been recorded within the APE of the Novato SD service area. The site was recorded during construction in 1980. Very little natural ground surface is visible in the location due to pavement and landscaping. A 100-foot radius along the right-of-way in the vicinity of this site was subject to intensive survey methods that included surface scraping with a trowel to remove any vegetation and reveal any shallow subsurface deposits. No cultural materials were observed and the site could not be relocated. No surface indications of the site were found during a subsequent survey effort in September 2008 with Nick Tipon of the FIGR.

Several additional sites are located within the ASA of the Novato SD service area. The portions of the APE nearest to these sites were inspected thoroughly to determine whether site boundaries extended into the APE (described below):

- Site P-21-000026. No midden soils, shell fragments, or other cultural materials were observed on the surface within the APE nearest to this site.
- Site P-21-000201. The nearest APE is paved and landscaped with no ground surface visibility.
- Site P-21-000216 was a large shellmound at the time of recording in 1907. There have been no successive recordings since that date. No midden, shell fragments, or other cultural materials were observed in the APE nearest to this site.
- Site P-21-000298. The nearest APE is paved and landscaped with no surface visibility.
- Site P-21-000376 is a petroglyph located near Dear Island.
- Site P-21-000377 is a bedrock milling station.
- The precise locations of sites P-21-000657, P-21-000658, P-21-000659, and P-21-000660 are not recorded. There is no indication that these sites extend into the APE nearest to their generally known locations.

SVCSD

An archaeological field inspection of the SVCSD Service Area pipelines was conducted by an ESA Registered Professional Archaeologist on December 13 and 14, 2005 (ESA, 2006). The area proposed for the booster pump station at Napa Road and Denmark Street was also subjected to pedestrian survey however the location was heavily vegetated with shrubs and trees reducing the surface visibility. No archaeological deposits were observed throughout the pipeline routes and the booster pump station. The Arroyo Seco section was not surveyed due to accessibility issues and the low visibility of the ground surface (mainly due to high levels of vegetation).

Site P-49-001693 (also called the Vineyard Site), was previously identified north of the proposed alignment by O'Brien and Roop (1980). Augering of the site in 1980 revealed no stratigraphy at 20–30 cm depths. An ESA survey conducted in 2005 did not identify any evidence of this site on the surface. The area surrounding the site has been used for viticulture for many years and, as a result, the native surface layers have been disturbed or removed. Shallow exposures using a trowel did not yield any cultural material or midden soils.

Site P-49-003299 is recorded east of the pipeline alignment. Site P-49-001399 is further to the east. No cultural materials were found in the 2005 survey in the vicinity of these sites or in the 2008 subsequent survey effort. The site P-49-003299 has not been relocated since its original recording in 1907. The site may have been destroyed due to grading or other earth-moving activities.

The exact location of P-49-002054 is not known (the site was recorded in 1907). No cultural materials were found in the vicinity mapped for this site during the 2005 survey conducted by ESA.

Site P-49-001042 was originally recorded within the APE. Cultural materials were not relocated during the 2005 survey. The site has been described as a possible redeposit of materials from a more substantial site (CA-SON-1115) located on the same ranch property.

Site P-49-000130 is located approximately north of the APE. During the on-foot survey conducted in 2005 no cultural material was observed in the nearest vicinity. The potential significance of P-49-000130—a contact-period site associated with General Mariano Vallejo's Native American workforce—justified an extended survey effort in the vicinity to confirm the presence or absence of cultural material in the immediate APE. Surface evidence of the site was found. The site consisted of darkened midden soil with a very light scatter of lithic debitage, shell, and one stone tool fragment. There is no indication that the site extends into the nearest APE located to south on the bike path.

Several additional sites are located within the ASA of the SVCSD service area. The nearest APE to these sites was inspected thoroughly to determine whether site boundaries extended into the APE.

- Site P-49-000193. No cultural materials were found during the 2005 survey in the APE nearest to the site.
- Site P-49-000345. No cultural resources were noted in the nearest APE.
- Site P-49-002053. No artifacts were found in the APE nearest to the mapped location of this site.
- Site P-49-002806. The site was recorded as destroyed and no cultural materials were observed within the nearest APE.

Historic-period archaeological sites such as filled wells or privies, foundations, and surface scatters (including P-49-000346, P-49-001344, P-49-001367, P-49-002305, P-49-002367, and P-49-002372) tend to be localized. No evidence of these sites was located within the current APE.

The Sonoma Valley Railroad berm was recorded in July 2008 as recommended by California State Parks, Senior Archaeologist Breck Parkman. The resource was recorded on a DPR form 523a. The railroad segment is currently paved for use as a bike path from Fourth Street East, west to Maxwell Farms Regional Park at Highway 12. From Fourth Street East, east towards Seventh Street East, an unpaved segment is located through the Sebastiani Winery property. At Seventh Street East the segment veers south to travel down Eighth Street East towards Vineburg. Embedded rails and ties are visible throughout the vineyard property segment, as well as between Seventh Street and East Napa, and along Eighth Street. The Sonoma Valley Railroad was incorporated in 1878 and a narrow-gauge line was constructed from Sonoma Landing at San Pablo Bay north to Sonoma. In 1881 the line was extended to Glen Ellen. The line served

Sonoma through the 1970s (Period of Significance 1878–1970s). A rebuilt railroad depot (the original depot burned in 1976) is located north of the segment at 270 First Street West. The railroad has not been previously evaluated for inclusion on the California or National Registers; however it appears unlikely that it would meet the criteria for evaluation, primarily due to its impaired integrity for the majority of its length. In addition the area of direct impact for the NBWRP is parallel to the tracks and would not impair or disturb the remaining features. Following project construction, the area would be restored to pre-project conditions.

The 37-acre parcel north of the SVCSD WWTP was surveyed on June 21, 2005 by an ESA Registered Professional Archaeologist (ESA, 2006). Approximately 14 acres of this parcel is proposed for the development of the new operational and capacity storage reservoirs and the distribution pump station. No archaeological material was identified within this survey area.

Based on an archaeological survey of the Salt Marsh Area on February 26, 2003 (Jones & Stokes, 2003), no archaeological materials were identified in the current Salt Marsh pipeline segment. The railroad berm recorded as P-28-000722 is 100 feet northeast of the nearest APE and was not relocated during the survey.

Napa SD

A mixed strategy survey of the Napa SD Service Area was conducted by an ESA Registered Professional Archaeologist on May 20, 2008. The area is primarily residential characterized by a rural atmosphere. The narrow roadways have few large pullouts and a limited right-of-way (two to six foot wide). Shoulders include earthen water-drainage ditches (occasionally lined with rocks or concrete). Rock walls delineating property boundaries were common throughout the vicinity.

Based on a survey (ESA, 2003) of the pipeline segment that would extend through the south end of Napa State Hospital, two historic-period archaeological resources (a rock wall and a concrete water reservoir) were recorded although not within 500 feet of the area of direct impact. No archaeological resources were recorded within the APE.

Site P-28-000622 was previously recorded as a very light lithic scatter (Baker, 1988). Major modifications to the road, bridge, and private driveway have occurred since the original recordation of the site. No cultural materials were found at this location during the survey effort.

Four historic-period stream crossing bridges were recorded during the 2008 survey effort (described below):

Coombsville Road Bridge #1. This bridge, which crosses Murphy Creek, is located on Coombsville Road approximately 2,000 feet east of the intersection with Fourth Avenue. It is a poured concrete barrel arch bridge with rough coursed stone parapets (side railings) about 20 feet long and about 24 feet wide. The bridge was constructed circa 1900, with an adjacent ornamental stone culvert dated 1941. Napa County is unique for its many stone arch bridges that dominated bridge construction from the 1860s through the mid-1910s, due to the available local supply of stone and the primarily European masons who had the skills to carve them. A survey and

evaluation by ESA determined that the bridge fits partially into the historical theme of Napa County's stone arch bridges because of its cut field stone parapets, and was constructed circa 1900 which is within this theme's period of significance (1860–1915). However, because this bridge is primarily a poured-concrete structure with smaller stone elements, it does not fit completely within the historical theme of Napa County's stone arch bridges, and therefore, does not appear to be eligible for listing in the National or California Registers.

Coombsville Road Bridge #2. This bridge, which crosses Tulucay Creek, is located on Coombsville Road about 450 feet east of the intersection with First Avenue. Nearly identical to the Coombsville Road Bridge #1, it is also a poured concrete barrel arch bridge with rough coursed stone parapets about 20 feet long and about 24 feet wide. The bridge is dated 1902. Because this bridge is primarily a concrete structure with smaller stone elements, it does not fit completely within the historical theme of Napa County's stone arch bridges, and therefore does not appear to be eligible for listing in the National or California Registers.

Hagen Road Bridge. This bridge, which crosses the southern fork of Sarco Creek, is located 220 feet west of the intersection of Hagen Road and La Londe Lane. Stylistically similar to the Coombsville Road Bridges #1 and #2, it also it is also a poured-concrete barrel arch bridge with rough coursed stone parapets about 20 feet long and about 24 feet wide constructed circa 1900. Because this bridge is primarily a concrete structure with smaller stone elements, it does not fit completely within the historical theme of Napa County's stone arch bridges, and therefore does not appear to be eligible for listing in the National or California Registers.

Loma Heights Road Bridge. This bridge, which also crosses the southern fork of the Sarco Creek, is located on Loma Heights Road about 100 feet south of the intersection with Hagen Road. It is a poured-concrete bridge built circa 1920 with concrete parapets about 20 feet long and about 24 feet wide. As described above, Napa County is unique for its many stone masonry bridges which dominated bridge construction from the 1860s through the mid-1910s, after which techniques began to trend with the rest of the state using steel and concrete. As a concrete bridge constructed circa 1920, it does not fit within the historical theme of Napa's early stone arch bridges from 1860–1915, and is more typical of the all-concrete bridges that were constructed throughout the state at this time. As such, it does not appear to be eligible for listing in the National or California Registers.

The Napa SD WWTP has been surveyed twice and no cultural resources have been recorded within the area of proposed upgrades (Flynn, Roop, and Melander, 1983; Mikkelsen, Berg, and Bouey, 1991). Although these surveys occurred more than five years ago, the WWTP site is highly disturbed, paved, and otherwise developed. Site P-28-000001 (CA-NAP-860/H) is located over 500 feet from the upgrades proposed for the Napa SD WWTP. No cultural materials have been recorded within the APE for the proposed upgrade at the Napa SD WWTP.

3.12.2 Regulatory Framework

Federal

Archaeological and architectural resources (buildings and structures) are protected through the NHPA of 1966, as amended (16 USC 470f) and it's implementing regulation, Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an "undertaking" (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies (e.g., Bureau of Indian Affairs, Bureau of Land Management, U.S. Bureau of Reclamation, U.S. Army Corps Of Engineers, etc.), to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing on the National Register of Historic Places. Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a tribe to be determined eligible for inclusion in the National Register. Under the NHPA, a find is significant if it meets the National Register listing criteria at 36 CFR 60.4, as stated below:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:
>
> a) That are associated with events that have made a significant contribution to the broad patterns of our history, or
>
> b) That are associated with the lives of persons significant in our past, or
>
> c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
>
> d) That have yielded, or may be likely to yield, information important in prehistory or history.

The American Indian Religious Freedom Act of 1978 allows access to sites of religious importance to Native Americans. On federal land, the Archaeological Resources Protection Act (ARPA) and Native American Graves Protection and Repatriation Act (NAGPRA) would apply. The ARPA assigns penalties for vandalism and the unauthorized collection of archaeological resources on federal land and provides for federal agencies to issue permits for scientific excavation by qualified archaeologists. The NAGPRA assigns ownership of Native American graves found on federal land to their direct descendants or to a culturally affiliated tribe or organization and provides for repatriation of human remains and funerary items to appropriate Native American descendants.

Federal review of projects is normally referred to as the Section 106 process. The Section 106 review normally involves a four-step procedure described in detail in the implementing regulations (36 CFR Part 800):

- identify and evaluate historic properties in consultation with the SHPO and interested parties;
- assess the effects of the undertaking on properties that are eligible for inclusion in the National Register;
- consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and
- proceed with the project according to the conditions of the agreement.

Management of ITAs

Executive Order 13007, Indian Sacred Sites, 61 FR 104

Executive Order 13007, signed on May 24, 2006, requires Reclamation, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, to avoid adversely affecting the physical integrity of Indian sacred sites and to allow access by Indian religious practitioners to sacred sites. All actions pursuant to this Order must comply with the 1994 Memorandum for Government to Government Relations (described below).

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, 63 FR 96

Executive Order 13175 (2000) was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications. When implementing such policies, agencies shall consult with tribal officials as to the need for federal standards and any alternatives that limit their scope or otherwise preserve the prerogative and authority of Indian tribes.

Government-to-Government Relations with Native American Tribal Governments (Memorandum signed by President Clinton; April 29, 1994). Federal Register, Vol. 59, No. 85

The Memorandum directs federal agencies to consult, to the greatest extent practicable and to the extent permitted by law, with tribal governments prior to taking actions that affect federally recognized tribal governments. Federal agencies must assess the impact of federal government plans, projects, programs, and activities on tribal trust resources and assure that tribal government rights and concerns are considered during such development.

Consistent with President William J. Clinton's 1994 memorandum, "Government-to-Government Relations with Native American Tribal Governments," the U.S. Department of the Interior (DOI), Bureau of Reclamation, Mid-Pacific Region (Reclamation), assesses the effects of its programs on tribal trust resources and federally recognized tribal governments. Reclamation is tasked to

actively engage federally recognized tribal governments and consult with such tribes on government-to-government level (59 Federal Register, 1994) when its actions affect ITAs. The U.S. DOI Departmental Manual Part 512.2 ascribes the responsibility for ensuring protection of ITAs to the heads of bureaus and offices (DOI, 1995). DOI is required to "protect and preserve ITAs from loss, damage, unlawful alienation, waste, and depletion" (DOI, 2000). Reclamation is responsible for assessing whether the proposed project has the potential to affect ITAs.

Secretarial Order No. 3175 – Departmental Responsibilities for Indian Trust Resources

Secretarial Order 3175, enforceable on November 8, 1993, requires that any anticipated impacts to ITAs from a proposed action by the DOI agencies be addressed in environmental documents (Office of American Indian Trust, 1995). The DOI bureaus and offices are required to consult with the recognized tribal government with jurisdiction over the trust property that a proposed action may affect.

Secretarial Order No. 3206 – American Indian Tribal Rights, Federal – Tribal Trust Responsibilities, and the Endangered Species Act

Secretarial Order No. 3206 was signed on June 5, 1997 and applies to all agencies within the DOI and Department of Commerce. This order clarifies the responsibilities when actions of the DOI agencies taken under the authority of the Endangered Species Act affect, or may affect, Indian lands, tribal trust resources, or the exercise of American Indian tribal rights. DOI agencies will carry out their responsibilities in a manner that harmonizes the federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the departments, and that strives to ensure that the Indian tribes do not bear a disproportionate burden for the conservation of listed species.

Secretarial Order No. 3215 – Principles for the Discharge of the Secretary's Trust Responsibility

Secretarial Order No. 3215 was signed on April 29, 2000 and is intended to provide guidance to the employees of the DOI who are responsible for carrying out the Secretary's trust responsibility as it pertains to ITAs.

Departmental Manual 512 DM Chapter 2 – Departmental Responsibilities for Indian Trust Resources

This chapter of the manual, effective December 1, 1995, establishes the policies, responsibilities, and procedures for operating on a government-to-government basis with federally recognized Indian tribes for the identification, conservation, and protection of American Indian and Alaska Native trust resources to ensure the fulfillment of the federal Indian Trust responsibility.

Indian Policy of the Bureau of Reclamation

Under the Indian Policy, Reclamation will comply with federal laws and policies relating to Indians; acknowledge and affirm the relationship between the U.S. and federally recognized Indian Tribes; and actively seek partnerships with Indian Tribes to ensure that the tribes have the opportunity to participate fully in the Reclamation program as they develop and manage their water and other related resources.

Bureau of Reclamation Protocol Guidelines: Consulting with Indian Tribal Governments

The document provides guidance on the protocol for conducting consultation and maintaining government-to-government relationships with Indian tribes.

Bureau of Reclamation Indian Trust Asset Policy and Guidance – 1993

This policy was signed by the Commissioner on July 2, 1993 and was incorporated in the Reclamation's environmental directives on October 1, 1993. The policy is intended to protect ITAs from adverse impacts of the Reclamation's programs and actions, and to help Reclamation assess and mitigate impacts to ITAs. The policy states that Reclamation shall carry out its activities in a manner that avoids adverse impacts, and in the case of adverse effects, mitigation or compensation shall be provided. To carry out this policy, Reclamation modified its NEPA Handbook compliance procedures to require evaluation of potential effects of proposed actions on trust assets.

State

The State of California implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the state's jurisdictions.

Local

The local general plans, polices, and regulations that govern cultural resources within the affected jurisdictions are defined in Appendix 3.12 of this EIR/EIS.

3.12.3 Environmental Consequences/Impacts

Significance Criteria under NHPA

Section 106 of the NHPA requires that a federal agency with direct or indirect jurisdiction over a proposed federal or federally-assisted undertaking, or issuing licenses or permits, must consider the effect of the proposed undertaking on historic properties. An historic site or property may include a prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register maintained by the U.S. Secretary of the Interior. If an undertaking may have an adverse effect, the first step is to identify the APE and the historic or cultural resources within the APE.

A significant impact would occur if a proposed action results in an adverse effect to a property that is listed in or eligible for inclusion in the National Register. The specific Criteria of Effect and Adverse Effect, as defined in 36 CFR 800.9, used to evaluate an undertaking's effect on a historic property, are as follows:

- An undertaking has an effect on a historic property when it may alter the characteristics of the property that qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.

- An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

  (1) Physical destruction, damage, or alteration of all or part of the property;

  (2) Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;

  (3) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;

  (4) Neglect of a property resulting in its deterioration or destruction; and

  (5) Transfer, lease, or sale of the property.

Significance Criteria under CEQA

Based on the Appendix G of the CEQA Guidelines, project implementation would have significant impacts and environmental consequences on cultural resources if it would result in any of the following:

- A substantial adverse change in the significance of a historical resource that is either listed or eligible for listing on the National Register of Historic Places, the California Register of Historic Resources, or a local register of historic resources;

- A substantial adverse change in the significance of a unique archaeological resource;

- Disturbance or destruction of a unique paleontological resource or site or unique geologic feature; or

- Disturbance of any human remains, including those interred outside or formal cemeteries.

Impact 3.12.1: Impact to Cultural Resources/Archaeological Sites. Project construction could affect existing cultural resources or uncover unknown and/or buried archaeological materials in areas of high prehistoric archaeological sensitivity. (Less than Significant with Mitigation)

While no archaeological sites were located in the APE, the archaeological investigation indicates that certain areas are sensitive for buried prehistoric archaeological resources that may be considered significant resources. Project construction would involve excavation activities that could inadvertently uncover and affect existing cultural resources and/or archaeological materials, which could be a significant impact. Implementation of **Mitigation Measures 3.12.1** and **3.12.2** would reduce the impact to less-than-significant levels.

Construction activities could require staging areas at locations that may have the potential to contain cultural resources. This impact would be minimized by implementation of **Mitigation Measure 3.12.3** and would be applicable to all member agencies, and therefore not discussed further.

No Project Alternative

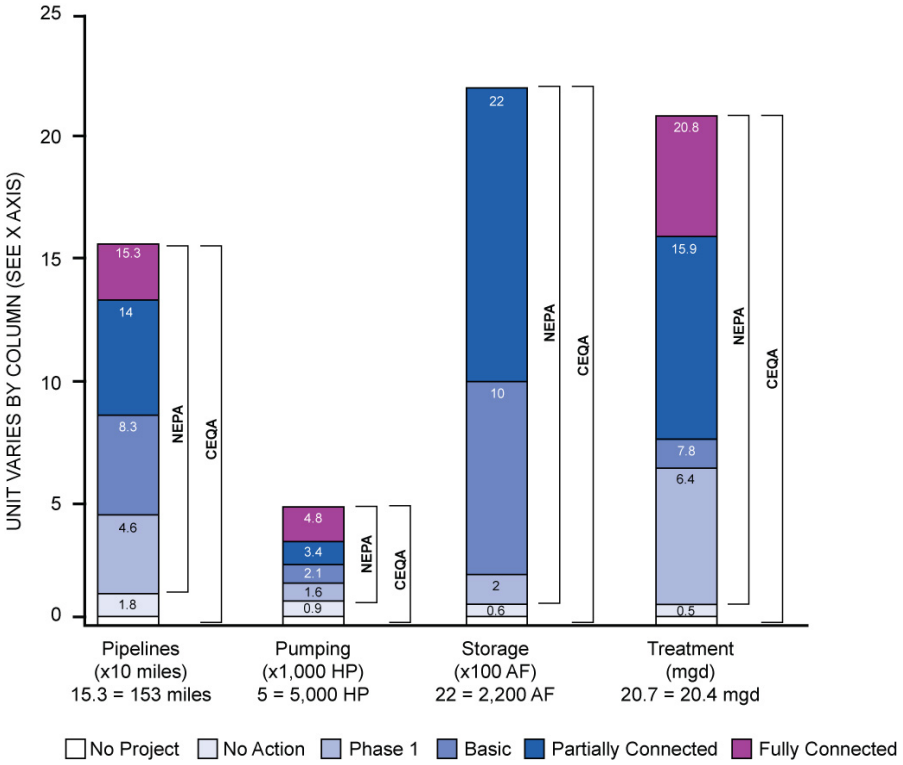
The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.12-1, No Action**).

CHART 3.12-1
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

Under future baseline (2020) conditions, cultural resources within the region are anticipated to remain unchanged. A discussion of individual Member Agencies is provided below.

Archaeologists and ethnographers have documented that the action area was intensively occupied by Native American groups. Coast Miwok, Wappo, and Patwin settlements focused on bays and estuaries, near perennial interior watercourses and springs, at the confluence of watercourses, along midslope terraces, and along ridgelines. The greater area incorporates all of these elements and was, therefore, a highly favored location for prehistoric populations.

Historic-period cultural resources have also been recorded throughout the action area for the three alternatives. Presence of a number of historic-period buildings, structures, and archaeological sites indicates intensive use and occupation throughout the historic period, which is reflected in material remains, both archaeological sites and the built environment. Project construction could have a significant effect to such existing cultural and archaeological sites. The impact would be reduced to less-than-significant levels by implementation of **Mitigation Measure 3.12.4**.

When specific plans are available for each phase of program-level activity, a project-level cultural resources review should be prepared. It is important to consult with the appropriate Native American representatives during the early phases of project planning. A discussion of potential impacts by Member Agency is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impacts on cultural resources would occur.

Novato SD/NMWD

Under the No Action Alternative, project construction could affect existing sites in the archaeologically sensitive area along Hill Road and Olive Street. This could be a significant impact, which would be reduced by implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3**.

SVCSD

Project construction associated with Alignment 1A of the Sonoma Valley Recycled Water Project could affect the sites by Fowler Creek. There are two additional prehistoric sites located within the ASA in the vicinity; therefore the area could be sensitive for prehistoric resources. The impact to potential prehistoric resources could be significant. Implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less than significant.

Under the Napa Salt Marsh Restoration Project, the Option A salt pond pipeline was discussed and analyzed in the Napa River Salt Marsh Restoration Project EIR/EIS (JSA, 2003). Construction activities associated with Options B and C could affect any cultural resources located close to Buchlis Station Road (as discussed in Setting above). The impacts however would be minimized through implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3.**

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impacts on cultural resources would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 horsepower (HP) of pumping capacity, treatment facilities providing 6.4 million gallons per day (mgd) of tertiary capacity, and 65 acre-feet (AF) of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to cultural resources and archeological sites under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, project construction in the LGVSD area could affect the sites in the archaeologically sensitive area around **P-21-000174.** The geologic map indicates that the area was historically on a rise surrounded by Holocene alluvial fan deposits overlaying tidal marsh and basins. The general location is sensitive for prehistoric archaeological resources and the project could potentially impact unknown and/or buried portions of this site. Implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less-than-significant.

Novato SD/NMWD

P-21-000551 was not relocated during the current survey effort. The most recent site record on file at the NWIC indicates that the site may extend below the pavement into San Marin Drive, although no evidence for this was found suring the survey effort. The general area should be considered sensitive for prehistoric archaeological resources. Implementation of Mitigation **Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less-than-significant.

The **Olive/H Street corridor** includes sites **P-21-000201, P-21-000216, P-21-000298, P-21-000376, and P-21-000377**. Historically, the Olive Street alignment was located along the edge of marshland and portions of the street are constructed on artificial fill overlaid on Bay Mud. The depth of artificial fill is not known. However, given the high sensitivity of the remaining portions of Olive Street and H Street the general area should be considered sensitive for prehistoric resources. Implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less-than-significant.

No indicators of **P-21-000026** were located within the APE of the NBWRP, however the general area should be considered sensitive for prehistoric archaeological resources. Implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less-than-significant.

SVCSD

The alignment that would extend through downtown Sonoma would lie just south of Lachryma Montis and along the northern and western boundaries of the Historic Park. Given the history of the area, it is possible that features, artifacts, and other subsurface deposits exist that could yield important information regarding California's history. Sonoma had a sizable Native American population during the Spanish and Mexican periods; the whereabouts of the residential area associated with this population is not known. No evidence of **P-49-000345** was found in the APE. During the subsequent survey effort in September 2008 surface evidence of **P-49-000130** was located approximately 700 feet north of the APE. There is no indication that the site extends into the APE. However, the general vicinity is sensitive for prehistoric cultural resources. The general area should be considered sensitive for prehistoric archaeological resources. Implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less than significant.

Pipeline installation along Arroyo Seco has a potential to encounter intact archaeological deposits. One archaeological site, **P-49-002054**, has been recorded within the APE of this pipeline segment. Subsequent survey efforts have failed to relocate this site. **P-49-003299** and **P-49-001399** are also located in this vicinity. The proximity of the pipeline to the Arroyo Seco waterway increases the potential for archaeological deposits in this area and pedestrian survey methods could not be satisfactorily completed in areas highly vegetated or areas with limited surface visibility. The general area should be considered sensitive for archaeological resources. Therefore, the implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less-than-significant.

Pipeline installation in the vicinity of Fowler Creek has a potential to encounter intact archaeological deposits. There are no surface indicators that **P-49-001693** extends into the APE. Surface survey also did not find evidence of **P-49-001042**. There are two additional prehistoric sites located within the ASA in this vicinity and the area should be considered sensitive for prehistoric resources. The general area should be considered sensitive for archaeological resources. Therefore, the implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less-than-significant.

Under Phase 1, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

P-28-000622 could not be relocated during the current survey effort. Since its recording, the Murphy Creek Bridge has been replaced, the road has been widened, and the adjacent driveway has been repaved. The area should be considered sensitive for archaeological resources. Therefore, implementation of **Mitigation Measures 3.12.1**, **3.12.2**, and **3.12.3** would reduce impacts to less-than-significant.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary

capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to cultural resources and archeological sites under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to cultural resources and archeological sites under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to cultural resources and archeological sites under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

Mitigation Measures

Mitigation Measure 3.12.1: The appropriate Member Agency will incorporate the following measures:

Mitigation Measure 3.12.1a: Prepare a Cultural Resources Monitoring Plan. Prior to authorization to proceed, or issuance of permits, the applicant shall prepare and submit a cultural resources monitoring plan to the appropriate jurisdiction for review and approval. Monitoring shall be required for all surface alteration and subsurface excavation work including trenching, boring, grading, use of staging areas and access roads, and driving vehicles and equipment within all areas delineated as sensitive for cultural resources. A qualified professional archaeologist (cultural resources monitor) that is approved by each Member Agency in consultation with all affected jurisdictions shall prepare the plan. The plan shall address (but not be limited to) the following issues:

- Training program for all construction and field workers involved in site disturbance;

- Person(s) responsible for conducting monitoring activities, including Native American monitors;
- How the monitoring shall be conducted and the required format and content of monitoring reports, including any necessary archaeological re-survey of the final pipeline alignment (including the need to conduct shovel-test units or auger samples to identify deposits in advance of construction), assessment, designation and mapping of the sensitive cultural resource areas on final project maps, assessment and survey of any previously unsurveyed areas;
- Person(s) responsible for overseeing and directing the monitors;
- Schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports;
- Procedures and construction methods to avoid sensitive cultural resource areas (i.e. boring conduit underneath recorded or discovered cultural resource site);
- Clear delineation and fencing of sensitive cultural resource areas requiring monitoring;
- Physical monitoring boundaries (e.g., 200-foot radius of a known site);
- Protocol for notifications in case of encountering of cultural resources, as well as methods of dealing with the encountered resources (e.g., collection, identification, curation);
- Methods to ensure security of cultural resources sites;
- Protocol for notifying local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction.

Mitigation Measure 3.12.1b: Archaeological and Native American Monitoring. If an intact archaeological deposit is encountered, all soil disturbing activities in the vicinity of the deposit shall cease until the deposit is evaluated. The appropriate Member Agency, as necessary, shall retain the services of a Native American monitor and a qualified archaeological consultant that has expertise in California prehistory to monitor ground-disturbing within areas designated as being sensitive for buried cultural resources. The archaeological monitor shall immediately notify the appropriate Member Agency of the encountered archaeological deposit. The monitors shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological deposit, present the findings of this assessment to NBWRA and the appropriate Member Agency. During the course of the monitoring, the archaeologist may adjust the frequency—from continuous to intermittent—of the monitoring based on the conditions and professional judgment regarding the potential to impact resources.

If a Member Agency, in consultation with the monitors, determines that a significant archaeological resource is present within their jurisdiction and that the resource could be adversely affected by the NBWRP, the Member Agency shall:

- Re-design the NBWRP to avoid any adverse effect on the significant archaeological resource; *or*,

- Implement an archaeological data recovery program (ADRP) (unless the archaeologist determines that the archaeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible). If the circumstances warrant an archaeological data recovery program, an ADRP shall be conducted. The project archaeologist and the Member Agency shall meet and consult to determine the scope of the ADRP. The archaeologist shall prepare a draft ADRP that shall be submitted to the appropriate Member Agency for review and approval. The ADRP shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ADRP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, shall be limited to the portions of the historic property that could be adversely affected by the NBWRP. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical.

Mitigation Measure 3.12.1c: Cultural Resources Assessment for Staging Areas. When locations for staging are defined the areas of potential effect should be subject to a cultural resources investigation that includes, at a minimum:

- An updated records search at the Northwest Information Center;
- An intensive survey of all areas within the lots;
- A report disseminating the results of this research; and,
- Recommendations for additional cultural resources work necessary to mitigate any adverse impacts to recorded and/or undiscovered cultural resources.

Mitigation Measure 3.12.1d: Inadvertent Discoveries. If discovery is made of items of historical or archaeological interest, the contractor shall immediately cease all work activities in the area (within approximately 100 feet) of discovery. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. After cessation of excavation the contractor shall immediately contact the NBWRA and appropriate Member Agency. The contractor shall not resume work until authorization is received from the appropriate Member Agency.

- In the event of unanticipated discovery of archaeological indicators during construction, the Member Agency shall retain the services of a qualified professional archaeologist to evaluate the significance of the items prior to resuming any activities that could impact the site.
- In the case of an unanticipated archaeological discovery, if it is determined that the find is unique under NHPA and/or potentially eligible for listing in the National Register, and the site cannot be avoided, appropriate Member Agency shall provide a research design and excavation plan, prepared by an archaeologist, outlining recovery

of the resource, analysis, and reporting of the find. The research design and excavation plan shall be submitted to NBWRA and appropriate Member Agency and approved by the appropriate Member Agency prior to construction being resumed.

Mitigation Measure 3.12.1e: Project-level Cultural Resources Assessment. When project-level plans are completed for the Basic System; the Partially Connected System; and the Fully Connected System, NBWRA the appropriate Member Agency will conduct a cultural resources investigation for the APE that includes, at a minimum:

- An updated records search at the NWIC;
- An intensive cultural resources survey of the APE;
- A report disseminating the results of this research; and,
- Recommendations for additional cultural resources work necessary to mitigate any adverse impacts to recorded and/or undiscovered cultural resources.

Significance after Mitigation: Less than Significant.

Impact 3.12.2: Discovery of Human Remains. Project construction could result in damage to previously unidentified human remains. (Less than Significant with Mitigation)

Based on background research, there is no indication that any particular site in the APE has been used for human burial purposes in the recent or distant past. Therefore, it is unlikely that human remains would be encountered during construction of the NBWRP. However, in the unlikely event that human remains were discovered during project construction, including those interred outside of formal cemeteries, the human remains could be inadvertently damaged, which could be a significant impact. However, this impact would be minimized by implementation of **Mitigation Measure 3.12.5**.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity,

and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.12-1, No Action**).

Under future baseline (2020) conditions, cultural resources within the region are anticipated to remain unchanged. A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD and SVCSD

Impacts associated with some portions of recycled water projects that would be constructed under the No Action Alternative would be similar to those discussed above. The impacts would apply to Novato SD and SVCSD.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts related to discovery of human remains under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

The impacts from construction of the Phase 1 components would be similar to those discussed above under the No Action Alternative, in addition to the impacts associated with the additional components under Phase 1.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts related to discovery of human remains under the Basic System would be equivalent to and greater than the impacts discussed above under the No Action Alternative and Phase 1, in proportion to the facilities constructed under this alternative. Implementation of Mitigation **Measure 3.12.5** would reduce the potential impact to less-than-significant level.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts related to discovery of human remains under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. Implementation of **Mitigation Measure 3.12.5** would reduce the potential impact to less-than-significant level.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts related to discovery of human remains under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below. Implementation of **Mitigation Measure 3.12.5** would reduce the potential impact to less-than-significant level.

Mitigation Measure

> **Mitigation Measure 3.12.2: Discovery of Human Remains.** If potential human remains are encountered, the appropriate Member Agency shall halt work in the vicinity of the find and contact the county coroner in accordance with Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5. If the coroner determines the remains are Native American, the coroner shall contact the NAHC. As provided in Public Resources Code Section 5097.98, the NAHC shall identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent makes recommendations for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Significance after Mitigation: Less than Significant.

Impact 3.12.3: Impact to historic architectural resources. The NBWRP has the potential to impact the setting of historic architectural resources. (No Impact)

The NBWRP has the potential to impact historic architectural resources located in the action area. Trenching and backfill operations during construction could have indirect impacts to the historic resources due to ground disturbance, however the disturbance would be temporary and the construction sites would be restored to pre-project conditions after construction. In addition, the area of direct impact would be confined to the construction site (e.g., parallel to exposed tracks and rails without disturbing the remaining features of the railroad under Napa SD project). The NBWRP would not alter or demolish existing historic structures or buildings. Therefore no impact is expected.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.12-1, No Action and **Table 3.12-3**).

TABLE 3.12-3
HISTORIC ARCHITECTURAL RESOURCES IN THE ACTION AREA

Recycled Water Action areas		Cultural Resources				
		No Action Alternative	**Phase 1**	**Alternative 1: Basic System**	**Alternative 2: Partially Connected System**	**Alternative 3: Fully Connected System**
LGVSD	NMWD URWP (South)	-	Hamilton Field Enlisted Barracks and Hangars			
SVCSD	Central Sonoma Valley	Sonoma Plaza/ Broadway Historic District	-	-	-	Sonoma Plaza/ Broadway Historic District
	Napa Salt Marsh	-	Sonoma Valley Railroad			
Napa SD	MST	-	Coombsville Road Bridges 1 and 2, Hagen Road Bridge, and Loma Heights Road Bridge			
	Napa (local)	-	-	-	Napa State Hospital	

Under future baseline (2020) conditions, cultural resources within the region are anticipated to remain unchanged. A discussion of individual Member Agencies is provided below.

Proposed construction would occur within existing public rights-of-way and would avoid direct impacts to historic architectural resources. Table 3.12-3 lists the historic architectural resources in the individual member agencies.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to historic architectural resources under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative (see Table 3.12-3). A discussion of impacts by Member Agency is provided below.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to historic architectural resources under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative (see Table 3.12-3).

Proposed construction would occur within existing public rights-of-way and would avoid direct impacts to historic architectural resources (see Table 3.12-3). Trenching and backfill operations during construction could have indirect impacts to the historic resources due to ground disturbance, however the disturbance would be temporary and the construction sites would be restored to pre-project conditions after construction. In addition, the area of direct impact would be confined to the construction site (e.g., parallel to exposed tracks and rails without disturbing the remaining features of the railroad under Napa SD project). The NBWRP would not alter or demolish existing historic structures or buildings. Therefore no impact is expected.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the

Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to historic architectural resources under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative (see Table 3.12-3).

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to historic architectural resources under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative (see Table 3.12-3).

Impact 3.12.4: Ground-borne vibration. Ground-borne vibration from construction activities could damage historic architectural resources. (Less than Significant)

Use of heavy equipment (e.g., a large bulldozer) typically generates vibration levels of 0.031 peak particle velocity at a distance of 50 feet. Since the potential building damage threshold of 0.5PPV is not exceeded, there will likely be no impact to historic architectural resources. Historic architectural resources located in the vicinity of the proposed construction activities may be structurally fragile and could be damaged by ground-borne construction vibration by cracks on exterior masonry or stucco or foundation settling. This impact would apply only to SVCSD under Phase 1, and, therefore is not discussed for the other Member Agencies.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity,

and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.12-1, No Action**).

Under future baseline (2020) conditions, cultural resources within the region are anticipated to remain unchanged. A discussion of individual Member Agencies is provided below.

Historic architectural resources would be located within 50 feet of construction activities of the SVRWP Alignment 1. Structures especially at risk would be those within the Sonoma Plaza/Broadway Historic District. However, at peak construction vibration levels of 0.031 at these sites, construction activities would not exceed the potential building damage threshold of 0.5 PPV. No physical damage to historic structures, such, is anticipated. Therefore, vibration from the ground-borne construction would have a less-than-significant impact on historic architectural resources.

Phase 1

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The ground-borne vibration impacts to historic architectural resources under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

SVCSD

Historic architectural resources would be located within 50 feet of construction activities of the SVRWP Alignment 2. Refer to the discussion above under No Action Alternative.

3.12.4 Impact Summary by Service Area

Table 3.12-4 provides a summary of potential cultural resources impacts associated with implementation of the NBWRP.

TABLE 3.12-4
POTENTIAL IMPACTS AND SIGNIFICANCE – CULTURAL RESOURCES

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
Impact 3.12.1: Impacts to Cultural/Archaeological Sites.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.12.2: Discovery of Human Remains.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.12.3: Impacts to the setting of historic architectural resources.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	NI	NI	NI	NI
Alternative 1: Basic System	NI	NI	NI	NI
Alternative 2: Partially Connected System	NI	NI	NI	NI
Alternative 3: Fully Connected System	NI	NI	NI	NI
Impact 3.12.4: Ground-borne vibration.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	LSM	NI
Phase 1	NI	NI	LSM	NI
Alternative 1: Basic System	NI	NI	LSM	NI
Alternative 2: Partially Connected System	NI	NI	LSM	NI
Alternative 3: Fully Connected System	NI	NI	LSM	NI

NI = No Impact
LTS = Less than Significant impact
LSM = Less than Significant with Mitigation
BI= Beneficial Impact

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3.13 Recreation

This section describes the existing recreational areas and facilities in the action area and the federal, state, and local regulations that would apply to the North Bay Water Recycling Program (NBWRP). This section evaluates the potential impacts to recreational areas that could result from implementation of NBWRP. The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

3.13.1 Affected Environment/Setting

LGVSD

California State Parks

The California State Parks Department owns and operates China Camp State Park, which serves as the eastern anchor of a series of outdoor recreational areas that extend through Marin County. The park features the natural watershed along the shores of San Francisco Bay, an extensive intertidal salt marsh, meadow and oak habitats. The LGVSD the Partially Connected System components are in the vicinity of China Camp State Park.

North Bay Regional Trails

The San Francisco Bay Trail

The Association of Bay Area Government (ABAG) manages and maintains the Bay Trail, which is a planned recreational corridor that, when complete, will encircle San Francisco and San Pablo Bays with a continuous 500-mile network of bicycling and hiking trails. The trail will connect the shoreline of all nine Bay Area counties, link 47 cities, and cross the major toll bridges in the region. The Bay Trail Plan, adopted by ABAG in July 1989, includes a proposed alignment; a set of policies to guide the future selection, design and implementation of routes; and strategies for implementation and financing. The proposed Phase 1 pipeline alignment that would extend from Hamilton Field to the LGVSD WWTP would be adjacent to the trail.

Bay Area Ridge Trail

Bay Area Ridge Trail Council (Council), consisting of representatives of the Golden Gate National Recreation Area and the Greenbelt Alliance, manages and maintains the Bay Area Ridge Trail. The trail was established to preserve open space by creating managed public access to a trail along the ridge tops. With over 310 miles completed of the 550 miles dedicated, there are sections of the trail in all nine counties around the Bay. The trail is in the vicinity of the proposed LVGSD Phase 1 project.

City of San Rafael Recreational Facilities

Within San Rafael there are 19 City-owned parks plus the joint Mont Marin Homeowners Association/ City-owned-park for a total of 141 acres of parkland. There are two local parks in the vicinity of the NBWRP. Peacock Park is located in the vicinity of the proposed pipeline to Peacock Gap under the LVGSD Partially Connected System. The pipeline would lie north of the Peacock Gap County Club at Peacock Drive and San Pedro Road. This seven acre park includes tennis courts, 2 play structures, and an open grass area. Victor Jones Park is located in the project vicinity west of the Peacock Gap Country Club at Robinhood Drive and Lockwood Drive. **Table 3.13-1** lists the proximate recreational facilities in the LGVSD service area.

TABLE 3.13-1
EXISTING PARKS ADJACENT TO THE NBWRP FOR LGVSD

Park Facility	Location	Project Component	Ownership
China Camp State Park	North San Pedro Road	Alternative 2	State of California
Peacock Park	Peacock Drive and San Pedro Road	Alternative 2	City of San Rafael
John F. Mcinnis Park	Smith Ranch Road	Phase 1	Marin County

SOURCE: ESA, 2006.

The San Rafael Bicycle and Pedestrian Plan is the product of a collaborative effort of the City of San Rafael Department of Public Works, San Rafael Bicycle and Pedestrian Advisory Committee, consultants Alta Planning Design, and members of the public. The purpose of the plan is to integrate proposed bicycle and pedestrian infrastructure improvements into San Rafael's overall transportation plan. In the action area, there are existing Class II and Class III bikeways. In general, there are existing bikeways along North San Pedro Road and Smith Ranch Road, along LGVSD Phase 1 and the Partially Connected System of the recycled water pipelines.

Marin County Recreational Facilities

The Marin County Parks and Open Space Department owns and operates 459 acres of parks. In addition, 464 linear miles of trails are open to the public, including 26 miles of paved pathways. There are two County parks in the project vicinity. The Loma Verde Pacheo Valle, and Ignacio Valley Open Space Preserves are west of the LGVSD Phase 1 project. The preserves are owned by the Marin County Open Space District and provide a western ridgeline along Highway 101 north of San Rafael. The 277-acre open space area offers walking and nature trails. The John F. Mcinnis Park is located east of Highway 101 on Smith Ranch Road in San Rafael and is adjacent to the LGVSD WWTP. The 441-acre park, owned and operated by the Marin County Parks and Open Space Department, includes a 25,000 square foot skatepark, two softball fields, two soccer fields, a canoe launch, four tennis courts, a group picnic area. This park also includes the McInnis Park Golf Center, including a 9 hole course, driving range, miniature golf, batting cages, pro shop, clubhouse, and restaurant. As, shown in **Table 3.13-1**, the LGVSD Phase 1 recycled water alignment would be adjacent to this recreational facility.

The Marin County Department of Public Works has developed a Countywide Bicycle Plan (2001), which has evolved from the collaborative planning efforts of various Pedestrian and Bicycle Advisory Committees. The goal of the Bicycle Plan is to make Marin County a model community for alternative transportation by implementing safe bikeways and pedestrian networks. The plan describes existing bikeways and proposed bikeways that are estimated for completion within five to 25 years. There are three categories of bikeways:

- Class I Bicycle Pathway: a bike path for the exclusive use of bicycles. It is separated from the road by space or a barrier. A Class I bikeway may be on part of a road right-of-way or on a separate right-of-way.
- Class II Bicycle Lane: a bike lane on a right-of-way primarily used by bicycles. Motor vehicles and pedestrians are not permitted on Class II bikeways, although vehicle parking is permitted. Class II bike lanes are separated from motorized vehicle travel lanes by a solid white stripe.
- Class III Bicycle Route: a bike route which shares its right-of-way with either motor vehicles or pedestrians. Class III bike routes can include roadways with shoulder striping.

In the action area, there are existing Class II and Class III bikeways. In general, there are existing bikeways along Hamilton Parkway, Main Gate Road, and Hangar Avenue, along LGVSD Phase 1 of the recycled water pipelines. **Table 3.13-2** lists the existing bikeways and their locations relative to the NBWRP components.

TABLE 3.13-2
EXISTING AND PROPOSED BIKEWAYS AND RECREATIONAL TRAILS ADJACENT TO THE NBWRP FOR LGVSD

Bikeway or Trail Facility	Location	Project Component	Ownership	Status
Class II Bikeway	Hamilton Parkway	Novato South Service Area	City of Novato	Existing
Class II Bikeway	Hangar Avenue	Novato South Service Area	City of Novato	Existing
Class III Bikeway	Main Gate Road	Novato South Service Area	City of Novato	Existing
Class III Bikeway	North San Pedro Road	Peacock Gap Service Area	City of San Rafael	Existing
Class II/ III Bikeway	North San Pedro Road	Peacock Gap Service Area	City of San Rafael	Proposed
San Francisco Bay Trail	North San Pedro Road, Haner Road, Hamilton Parkway, Smith Ranch Road	Phase 1 and Peacock Gap Service Area	City of San Rafael/ City of Novato	Existing

SOURCE: ESA, 2006.

Novato SD

North Bay Regional Trails

The *Novato General Plan* requires Novato to "facilitate the development of an integrated trails system and a continuous Bay Trail that connects regional trails, schools, open space, parks, recreation facilities, and residential areas", as well as to "work with the Marin County Open Space District, ABAG, and other regional, state and federal agencies to implement the trail system as described in the Hamilton Bay Trail Public Access Plan, Marin Countywide Plan and ABAG Bay Trail Project", to "work with the Bay Area Ridge Trail Council to implement the Novato portion of the Bay Area Ridge Trail, encircling San Francisco Bay on ridge lines".

As discussed above two regional trails are in the vicinity of the NBWRP. The San Francisco Bay Trail is south of the Novato Phase 1. The Bay Trail is also in the vicinity of the Partially Connected System and Fully Connected System extensions to Sears Point. The Bay Area Ridge Trail, from Sir Francis Drake Blvd. to Lucas Valley Road, is also in the vicinity of the Phase 1 project.

City of Novato Recreational Facilities

The City of Novato owns over 59 acres of developed parks and 169 acres of undeveloped future park lands.

There are five parks in the vicinity of NBWRP that are owned and maintained by the City of Novato, which are listed in **Table 3.13-3**. Scottsdale Pond Park is located west of Highway 101 at Redwood Boulevard and Rowland Boulevard, adjacent to Phase 1 of NBWRP. It includes a pond, fishing pier, and gazebo. Arroyo Aviche Park is located at 1430 Johnson Street at Arthur Street and Taft Court, and is adjacent to the NBWRP. The park includes play structures, baseball field, and picnic and barbeque areas. The Hill Recreation Area, located at 1560 Hill Road, is located adjacent to the proposed Phase 1 pipeline alignment. The 12.4-acre facility includes baseball field, Multi-use turf area, restroom, soccer fields, senior center, and community hall. Slade Park, located at 593 Manuel Drive, is located east of the proposed central service area pipeline alignment. It includes a barbeque and picnic area, multi-use turf area, and play structure. Olive Park is located at 629 Plum Street, north of the Phase 1 pipe alignment in the northern service area. It includes baseball fields and a play structures.

TABLE 3.13-3
EXISTING AND PROPOSED PARKS ADJACENT TO THE NBWRP FOR NOVATO SD

Park Facility	Location	Project Component	Ownership	Status
Scottsdale Marsh/ Pond Park	Redwood Blvd. and Rowland Blvd.	Central Service Area	City of Novato	Existing
Arroyo Aviche Park	1430 Johnson Street	Central Service Area	City of Novato	Existing
Hill Recreation Area	1560 Hill Road	Central Service Area	City of Novato	Existing
Slade Park	593 Manuel Drive	Central Service Area	City of Novato	Existing
Olive Park	629 Plum Street	North Service Area	City of Novato	Existing

SOURCE: ESA, 2006.

The 2007 Novato Bicycle Plan provides for a citywide network of bicycle paths, lanes and routes, along with bicycle-related programs and support facilities, intended to ensure bicycling becomes a viable transportation option for people who live, work and recreate in Novato. Current bikeway network information was gathered from meetings with the Novato Bicycle/Pedestrian Advisory Committee and City staff, combined with information on proposed routes from the previously adopted City of Novato Bicycle Plan (1995). Relevant bikeway information was also gathered from the Marin County Unincorporated Area Bicycle and Pedestrian Master Plan (2001). As discussed above, there are existing and proposed Class I, Class II and Class III bikeways in the Novato SD action area. They are prominently along Redwood Boulevard, Olive Avenue, Rowland Boulevard, Hill Road, Atherton Boulevard, and Novato Avenue. These bikeways and their relationship to the NBWRP components are listed in **Table 3.13-4**.

TABLE 3.13-4
EXISTING AND PROPOSED BIKEWAYS AND RECREATIONAL TRAILS ADJACENT TO THE NBWRP FOR NOVATO SD

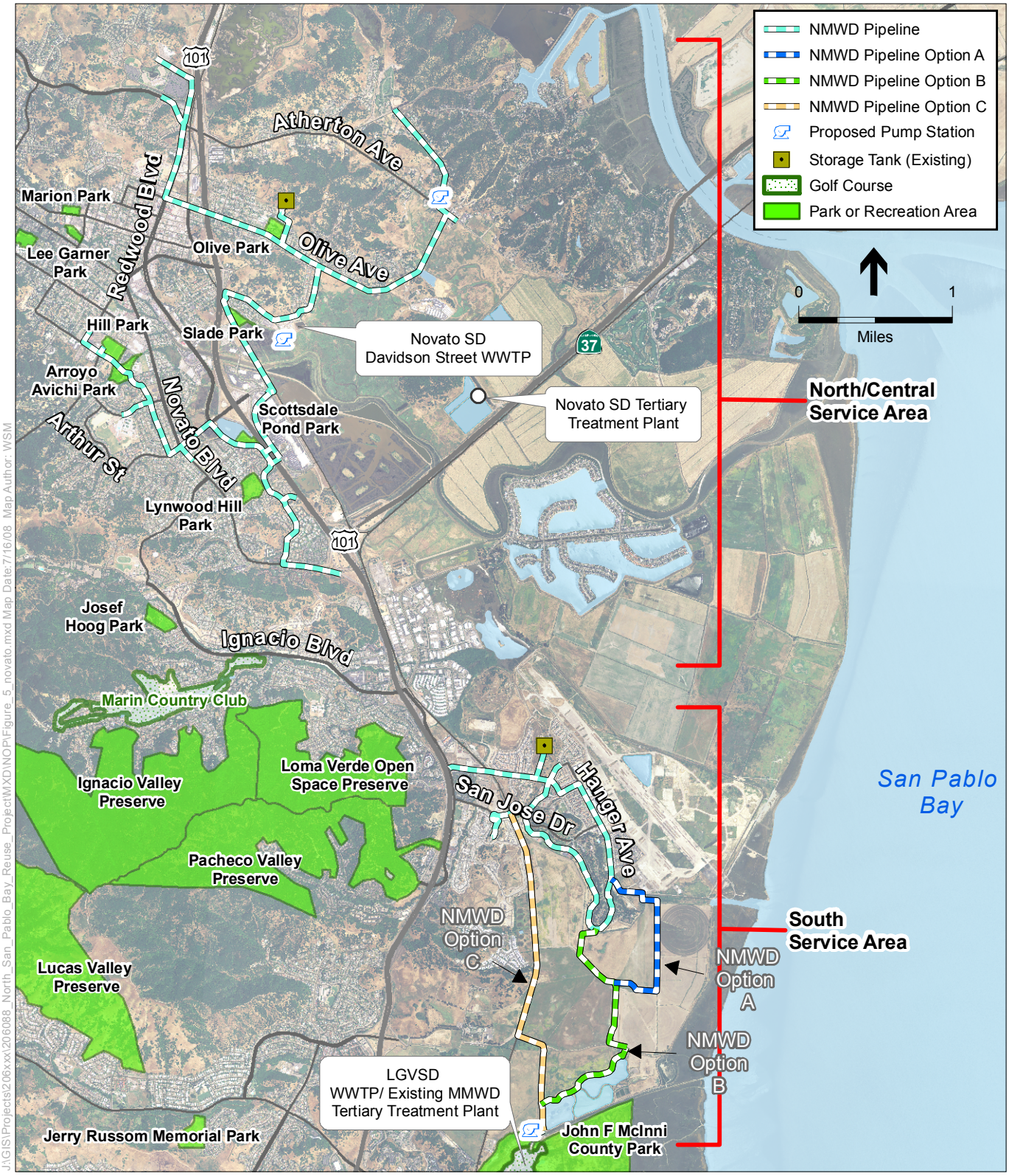
Bikeway or Trail Facility	Location	Project Component	Ownership	Status
Class II Bikeway	Novato Boulevard	Central Service Area	City of Novato	Existing
Class II Bikeway	Rowland Boulevard	Central Service Area	City of Novato	Existing
Class III Bikeway	Redwood Boulevard	Central Service Area	City of Novato	Existing
Class III Bikeway	Hill Road	Central Service Area	City of Novato	Existing
Class II Bikeway	Atherton Avenue	North Service Area	City of Novato	Existing
Class II Bikeway	Olive Avenue	North Service Area	City of Novato	Existing
Class II Bikeway	Connecting Atherton Avenue and San Marin Drive	North Service Area	City of Novato	Proposed
Class II Bikeway	Connecting Olive Avenue and Atherton Avenue	North Service Area	City of Novato	Proposed
San Francisco Bay Trail	Highway 37/ Sears Point Road	Phase 2 and 3	City of Novato	Proposed

SOURCE: ESA, 2006.

Marin County Recreational Facilities

As discussed above, the Marin County Department Parks and Open Space owns and operates 459 acres of parks. The Loma Verde Pacheo Valle, and Ignacio Valley Open Space Preserves are south of the action area, as shown in **Figure 3.13-1**. The preserves are owned by the Marin County Open Space District and provide a western ridgeline along Highway 101 north of the City of San Rafael. The 277-acre open space area offers walking and nature trails.

As discussed above, the Marin County Department of Public Works developed a Countywide Bicycle Plan to make Marin County a model community for alternative transportation by implementing safe bikeways and pedestrian networks. In the Novato SD action area there are both existing or proposed Class I, Class II and Class III bikeways along Redwood Boulevard, Olive Avenue, Rowland Boulevard, Hill Road, Atherton Boulevard, and Novato Avenue.



SOURCE: USDA, 2005; CDM, 2008; ESRI; 2008; and ESA, 2008

Note: Existing Tank Facilities Shown

NBWRA North Bay Water Recycling Program. 206088.01

Figure 3.13-1

Novato Service Area:
Phase 1 Projects with Recreation Areas

SVCSD

California State Parks

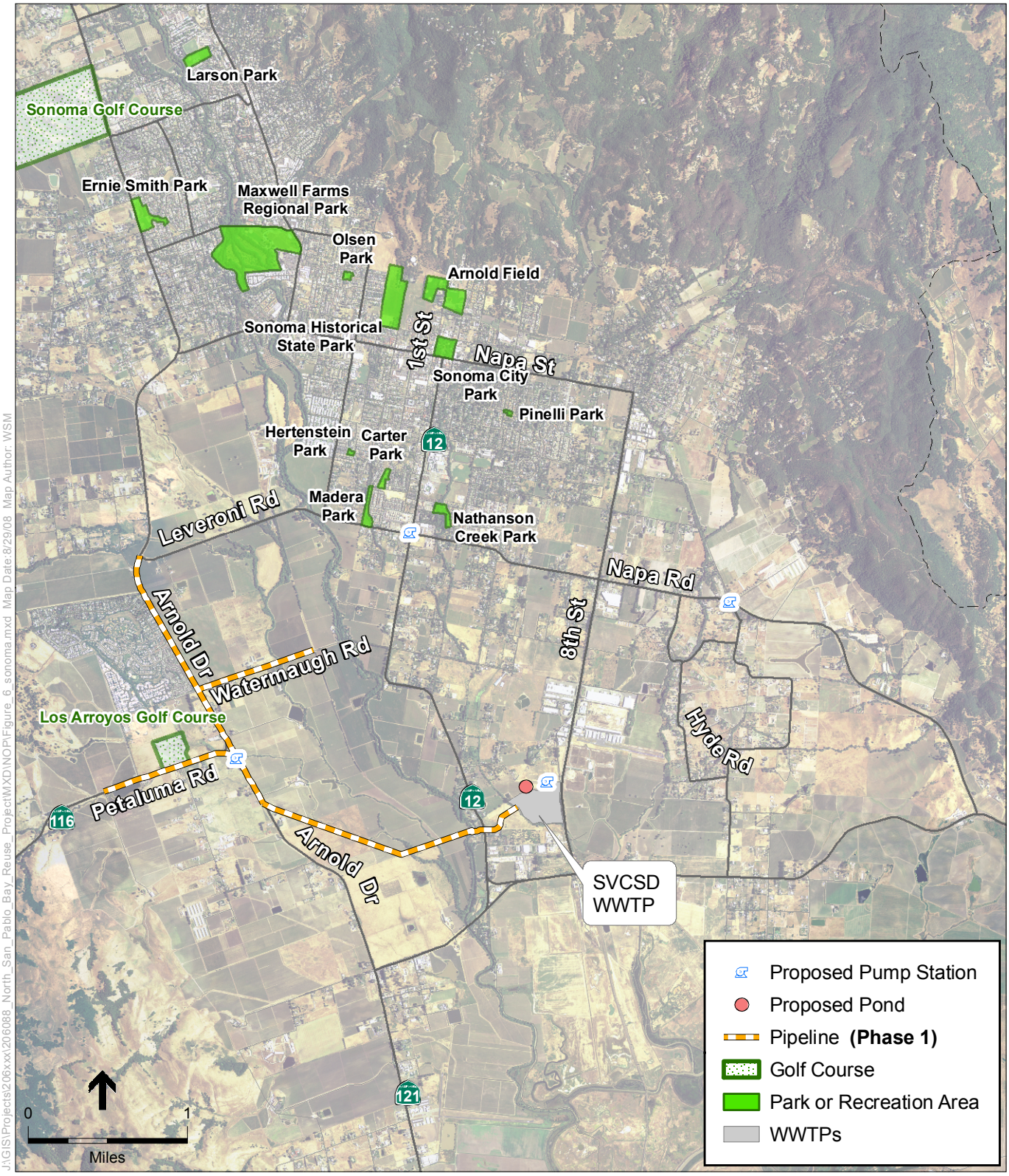
The California State Parks Department owns and operates Sonoma State Historic Park, which is bounded by 1st Street East, West Spain Street, and 4th Street West in Sonoma (see **Figure 3.13.2**). The 60-acre park includes museums and historic structures, a visitor center, guided tours, bike trails, and picnic areas. The park contains six sites: the Vallejo Home, which is located just south of the City of Sonoma storage tanks at the northern end of 3rd Street West and La Casa Grande; Mission San Francisco Solando de Sonoma; the Blue Wing Inn; the Sonoma Barracks; and the Toscano Hotel, which are located on East Spain Street near the intersection of 1st Street East. The Bike Path Segment-West of SVRWP Alignment 2 of the recycled water pipeline would occur near the park.

Recently, the Sonoma County Agricultural Preservation and Open Space District (District) purchased the 157-acre Montini Ranch, the greenbelt area just north of the City of Sonoma. One hundred acres of the ranch are expected to be to be incorporated into the Sonoma State Historic Park, and the remaining 57 acres will be protected through a conservation easement (Sonoma County Agricultural Preservation and Open Space District, 2006). The ranch consists of open grasslands and oak woodlands and would be available to the public for low-intensity uses such as hiking (Sonoma News, 2005). The District is planning new trails for the property that would connect to existing neighboring trails and the Sonoma Trail (described below).

The largest expanse of accessible public open space in proximity to most of the County residents is south of the city of Napa in the Napa-Sonoma salt marshes and Napa River floodplain, which is owned and managed by the California Department of Fish and Game (CDFG). This action area is composed of the Napa River Unit, and access to the northern action area requires travel through a portion of the Huichica Creek Unit of the Napa-Sonoma Marshes Wildlife Area (NSMWA). Both these areas are largely open to the public, although there is limited access because of a lack of trails on-site. CDFG provides two public parking lots, one on SR 37 and one north of the salt ponds at the end of Buchli Station Road. Access to the salt ponds is best accomplished by boat. Nearby boat launch facilities are provided on Cuttings Wharf Road and Skaggs Island Road. The area is used primarily for habitat purposes but is open to the public for various hunting activities and fishing. The CDFG has prepared a draft recreation and public use plan for the NSMWA. The marshes would be in the vicinity of the Partially Connected System project, as well as the No Action and Phase 1 Napa Salt Marsh project (JSA, 2004).

City of Sonoma Recreational Facilities

There are approximately 187 acres of parkland within and adjacent to the City of Sonoma (City of Sonoma, 1995). Recreational facilities along SVRWPAlignment 2 of the proposed recycled water pipeline include: Madera Park on Napa Road; Sonoma City Park (The Plaza) at the intersection of Broadway and Napa Street; Arnold Field, Field of Dreams, and Depot Park on 1st Street West, north of the Sonoma Multi-Use Trail; and Olson Park along the western segment of the Sonoma Multi-Use Trail.



SOURCE: USDA, 2005; CDM, 2008; ESRI, 2008; and ESA, 2008

Note: Existing Facilities Not Shown

NBWRA North Bay Water Recycling Program. 206088.01

Figure 3.13-2

Sonoma Valley Recycled Water Project Area
Phase 1 Projects with Recreation Areas

The Sonoma Multi-Use Trail provides pedestrian and bicycle access along an old railroad right-of-way north of Spain Street. The path, which is used for bike riding, roller blading, walking, and running, has a paved right-of-way of roughly 10 feet with clear shoulders on each side. The trail traverses through Sonoma State Historic Park and Depot Park, provides an east-west corridor within the city, and provides access to recreation areas.

Other recreational facilities in the vicinity of the NBWRP include Sonoma Mission Inn Golf Course, Valley of the Moon Driving Range, and Los Arroyos Golf Course, all located along Alignment 1 of the proposed recycled water pipeline.

Sonoma County Recreational Facilities

The Sonoma County Regional Parks Department (SCRPD) owns and operates 39 recreation areas, five of which are in Sonoma Valley (SCRPD, 2005). There are three County parks in the action area near Alignment 1 of the recycled water pipeline. Maxwell Farms Regional Park, located on Verano Avenue in Sonoma, is 85 acres and includes multi-use fields, Macdougald Skateboard Park, and Valley of the Moon Boys & Girls Club. Larson Regional Park is located between Arnold Drive and Highway 12 in Boyes Hot Springs and includes multi-use fields, tennis courts, and picnic areas. Ernie Smith Community Park is located on Arnold Drive in El Verano and includes multi-use fields and a wetlands restoration area.

SCRPD is developing a regional trail system to link various parks and expand hiking and equestrian opportunities (Sonoma County, 2006). The Sonoma Trail is located in the action area and would follow the existing bike path in the northern part of the City of Sonoma, then extend south along 8th Street East to Highway 121/12. The Sonoma Trail would be a multiple-use trail allowing hiking, biking, and equestrian use. The proposed Sonoma Trail would be directly adjacent to Alignment 2 and 3 of the recycled water pipeline and adjacent to the proposed operational and capacity storage facilities.

The 2003 Countywide Bicycle Plan describes existing bikeways and proposed bikeways that are estimated for completion within five to 25 years. There are three categories of bikeways (Sonoma County Transportation Agency, 2003):

- *Class I Bicycle Pathway*: a bike path for the exclusive use of bicycles. It is separated from the road by space or a barrier. A Class I bikeway may be on part of a road right-of-way or on a separate right-of-way.

- *Class II Bicycle Lane*: a bike lane on a right-of-way primarily used by bicycles. Motor vehicles and pedestrians are not permitted on Class II bikeways, although vehicle parking is permitted. Class II bike lanes are separated from motorized vehicle travel lanes by a solid white stripe.

- *Class III Bicycle Route*: a bike route which shares its right-of-way with either motor vehicles or pedestrians. Class III bike routes can include roadways with shoulder striping.

In the action area, there are both existing and proposed Class I, Class II and Class III bikeways. In general, there are existing and/or proposed bikeways along Alignments 1, 2, and 3 of the recycled

water pipelines, in the vicinity of the City of Sonoma storage tanks, and adjacent to the proposed booster pump station, the proposed operational and capacity storage facilities, and the proposed distribution pump station.

Napa SD

North Bay Regional Trails

As discussed above two regional trails are in the vicinity of the action area. The San Francisco Bay Trail's route has not been firmly established in Napa, although one alternative locates the trail near the Cuttings Wharf area entering Napa on Old Suscol Road through the Stanly Ranch to Stanly Lane and then onto Foster Road where it would connect with Imola, cross the river and proceed through Kennedy Park to the Napa-Vallejo Highway. Connector trails are proposed along Highway 29 and American Canyon Road. Alternatively the trail could use Old Sonoma Road from the Carneros District leading to Imola. The route along Imola Avenue would be in the project vicinity. The proposed Ridge Trail route in the North Bay is to run from Sugarloaf Ridge State Park in Sonoma, through Napa County and the city of Napa, then through Skyline Park to Solano County. The exact alignment through Napa County has tentatively been determined to be a loop trail on both the east and west ridges of the Valley. The trail would be in the vicinity of NBWRP from the City of Napa to Skyline Park.

City of Napa Recreational Facilities

The City of Napa's park system currently (1995) totals 753 acres, of which 287 acres are improved for active recreation and 466 acres are minimally improved for passive uses or remain unimproved. There are two neighborhood park facilities in the project vicinity, however they are not adjacent to the proposed pipeline routes. Shurleff Park, located at 12338 Shetler Avenue, has picnic areas and a dog park. Camille Park, located at Shurtleff Avenue and Kansas Avenue, has walking trails, a play structure, and a picnic area. John F. Kennedy Memorial Park is a community park located on Highway 121 just south of West Imola Road. The park is a multi-use, 350 acre park with barbeques, five picnic areas, children's play area, easy hiking along the Napa River, baseball fields, volleyball, boat launching, and the Napa Golf Course. These facilities are illustrated in **Figures 3.13-3** and **3.13-4** (also refer to **Table 3.13-5**).

Napa County Recreational Facilities

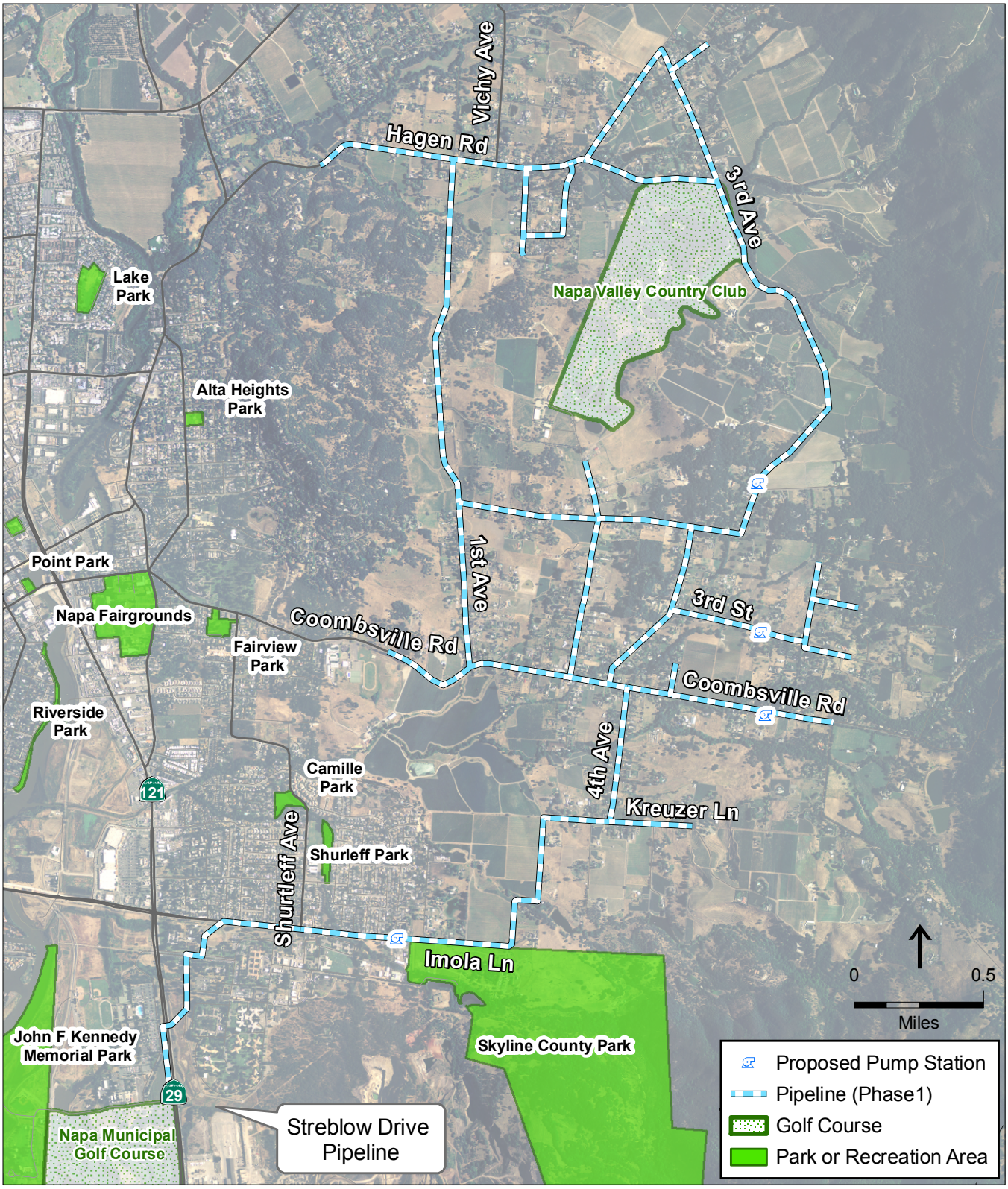
The majority of Napa County's open space is concentrated primarily in the eastern portion of the County. Although open space is open to the public, the access, signage and trail designations at some of these facilities are not well marked and in some instances, not present. There is one park facility located in the vicinity of NBWRP. Skyline Park, located at 2201 Imola Avenue, is an 850-acre open space regional park that is owned by the state but operated and maintained by a non-profit organization through a lease by Napa County. The park offers several activities including camping, RV amenities, and miles of hiking, mountain biking and equestrian trails, an archery range, and a native plant garden. The proposed Napa SD Phase 1 pipe alignment runs along the access road to the park.

SOURCE: USDA, 2005; CDM, 2008; ESRI, 2008; and ESA, 2008

NBWRA North Bay Water Recycling Program. 206088.01

Figure 3.13-3

SVCSD Napa Salt Pond Pipeline
Phase 1 Project with Recreation Areas



SOURCE: USDA, 2005; CDM, 2008; ESRI, 2008;and ESA, 2008

Note: Existing Facilities Not Shown

NBWRA North Bay Water Recycling Program. 206088.01

Figure 3.13-4

Napa SD MST Area:
Phase 1 Projects with Recreation Areas

TABLE 3.13-5
EXISTING AND PROPOSED PARKS ADJACENT TO THE NBWRP IN THE SVCSD SERVICE AREA

Park Facility	Location	Project Component	Ownership	Status
Ernie Smith Community Park	Arnold Drive	Alignment 1	County of Sonoma	Existing
Madera Park	Napa Road	Alignment 1	City of Sonoma	Existing
Sonoma State Historic Park	W Spain St	Alignment 2	State of California	Existing
Depot Park	1st St West	Alignment 2	City of Sonoma	Existing
Sonoma City Park	Napa St	Alignment 2	City of Sonoma	Existing
Field of Dreams	1st St West	Alignment 2	City of Sonoma	Existing
Arnold Field	1st St West	Alignment 2	City of Sonoma	Existing
Olsen Park	Linda Drive	Alignment 2	City of Sonoma	Existing
Montini Ranch	Norrbom Road	Alignment 2	County of Sonoma	Proposed
Napa-Sonoma Salt Marsh	Buchli Station Road and SR 37	Napa Salt Marsh Phase 1	CA Dept. Fish and Game	Existing

SOURCE: ESA, 2006.

TABLE 3.13-6
EXISTING AND PROPOSED BIKEWAYS AND RECREATIONAL TRAILS ADJACENT TO THE NBWRP IN THE SVCSD SERVICE AREA

Bikeway or Trail Facility	Location	Project Component	Ownership	Status
Class II Bikeway	Arnold Drive	Alignment 1	County of Sonoma	Existing
Class II Bikeway	Arnold Drive, Leveroni Rd	Alignment 1	County of Sonoma	Proposed
Class III Bikeway	Highway 116	Alignment 1	County of Sonoma	Proposed
Sonoma Creek Trail	Sonoma Creek between Petaluma Ave and Leveroni Rd	Alignment 1	County of Sonoma	Proposed
Sonoma Multi-Use Trail	Bike path north of Spain St	Alignment 2	City of Sonoma	Existing
Class II Bikeway	Broadway	Alignment 2	City of Sonoma	Existing
Class II Bikeway	Broadway, Napa Rd, 5th St East, MacArthur St	Alignment 2	City of Sonoma	Proposed
Class III Bikeway	Napa St, Broadway, 4th St East	Alignment 2	City of Sonoma	Proposed
Sonoma-Schellville Trail	8th St East	Alignment 3	County of Sonoma	Proposed
Sonoma Trail	8th St East	Alignment 3	County of Sonoma	Proposed
Class II Bikeway	Napa Rd, Denmark St	Alignment 3	County of Sonoma	Proposed

SOURCE: ESA, 2006.

Napa Countywide Bicycle Plan

The Napa County Transportation Planning Agency (NCTPA) has developed a Countywide Bicycle Plan (NCTPA, 2003). The goal of the Bicycle Plan is to create a countywide non-motorized transportation system that links both urban centers and recreation areas. The 2003 Countywide Bicycle Plan describes existing bikeways and proposed bikeways that are estimated for completion within five to 25 years. The plan designates three categories of bikeways, which are equivalent to those described in the SVCSD discussion above.

In the action area, there are both existing and proposed Class II and Class III bikeways, as listed in **Table 3.13-7**. In general, there are existing and/or proposed bikeways along proposed recycled water pipeline routes on West Imola Road and Coombsville Road.

TABLE 3.13-7
EXISTING AND PROPOSED BIKEWAYS, RECREATIONAL TRAILS, AND RECREATION FACILITIES ADJACENT TO THE NBWRP FOR NAPA SD

Recreational Facility	Location	NBWRP Alternative Affecting Facility	Recreational Facility Ownership	Status
Class III Bikeway	Imola Avenue	Phase 1	City of Napa	Existing
San Francisco Bay Trail	Foster Road to Imola Avenue, cross the river and proceed through Kennedy Park to the Napa-Vallejo Highway	Phase 1	ABAG	Proposed
Bay Area Ridge Trail	the City of Napa to Skyline Park via Imola Ave.	Phase 1	Bay Area Ridge Trail Council	Proposed
Skyline Wilderness Park	Imola Avenue	Phase 1 pipeline	State of CA/ Napa County- subleased to Skyline Park Citizens Association	Existing
Napa Valley County Club	Hagen Road	Phase 1 pipeline	Privately owned	Existing

Other Facilities

Other recreational facilities in the vicinity of NBWRP include the Napa Valley County Club, 3385 Hagen Road, located along the Napa SD Phase 1 of the proposed recycled water pipeline.

3.13.2 Regulatory Framework

The policies and regulations associated with impacts to utilities and services within the affected jurisdictions are presented in **Appendix 3.13** of this EIR/EIS.

3.13.3 Environmental Consequences/ Impacts

Significance Criteria under CEQA

Based on the Appendix G of the *CEQA Guidelines*, project implementation would have significant impacts and environmental consequences on recreation resources if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Environmental Consequences/Impact Analysis

Impact 3.13.1: Temporary disturbance. Project construction could result in short-term disturbance adjacent to recreational facilities. (Less than Significant with Mitigation)

Project construction would involve installation of pipelines, and the construction of booster pump stations, storage tanks, and storage reservoirs, as well as treatment upgrades in existing WWTPs. Construction activities could disrupt access to nearby recreational facilities, however the impact would be short-term and temporary. Delivery of construction materials could disrupt bikeways along access roads. Users of the proposed bikeways may experience temporary impacts from noise, dust, traffic, and visual intrusion from pipeline construction. Construction-related impacts would be reduced to a less than significant level with implementation of **Mitigation Measure 3.13.1** and measures identified in Sections 3.8, Air Quality, 3.9, Noise, and 3.7, Transportation and Traffic. After construction is complete, surfaces would be restored to pre-existing conditions.

Construction of pipelines would occur primarily along existing public roadways, however the construction activities could affect recreational facilities as discussed above. Proposed operational and capacity storage reservoirs and booster pump stations would not be directly adjacent to recreational facilities, therefore would not have a significant effect.

Rehabilitation of existing storages tanks and treatment upgrades would not require construction activities that would affect recreational facilities. Therefore, these issues are not discussed further.

No Project Alternative

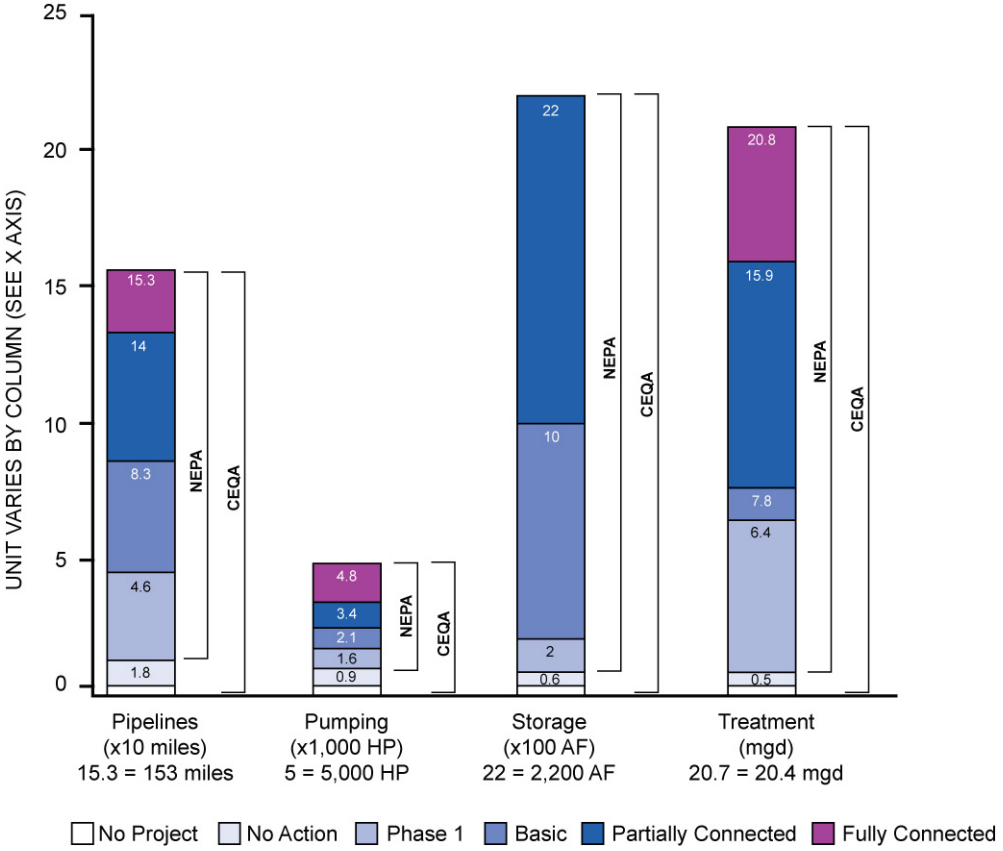
The NBWRP would not be implemented under the No Project Alternative, therefore there would be no impact. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.13-1, No Action**).

CHART 3.13-1
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

Under future baseline (2020) conditions, recreational resources within the region are anticipated to be similar to existing conditions in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

Novato SD No Action Alternative would include implementation of recycled water distribution facilities within the North Service Area. Construction of the recycled water pipeline could temporarily disrupt adjacent parks- Slade Park and Olive Park- and bikeways along Atherton Avenue, and Olive Avenue. Construction-related impacts would be similar to that discussed above and could be significant. However, the impact would be reduced to a less-than-significant level with implementation of mitigation measures identified in **Sections 3.7, Transportation and Traffic, 3.8, Air Quality;** and **3.9, Noise.**

SVCSD

The SVCSD No Action Alternative would include Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP). As stated in the SVRWP EIR, the main pipeline would originate from the SVCSD WWTP, extend southwest and then northwest through a vineyard to Arnold Drive. Construction of Alignment 1 of the recycled water pipeline would temporarily disrupt Ernie Smith Community Park on Arnold Drive and bikeways along Arnold Drive and Leveroni Road. Users of the Community Park and bikeways may experience temporary impacts from noise, dust, traffic, and visual intrusion from pipeline construction. Construction-related impacts would be similar to those discussed above and would be reduced to a less-than-significant level with implementation of mitigation measures identified in **Sections 3.7, Transportation and Traffic, 3.8, Air Quality;** and **3.9, Noise**.

The pipeline and the pump station under Napa Salt Marsh Restoration Project were discussed and analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (JSA, 2003) under the Water Delivery Project Component (Sonoma Pipeline). Two Alternative Routes (Option B and Option C) as discussed under **Chapter 2, Project Description**, would consist of a pipeline route along existing roadways in the salt marsh areas.

The Huichica Creek Unit is a wildlife preserve that can be accessed only at Buchli Station Road at the east end of the alignment. The pipeline under Option B and C would be placed beneath Buchli Station Road where a parking lot is located. Access may be limited for a period of time until the construction crews complete the pipeline in the area. Buchli Station Road in the action area is a road used specifically for access to the salt marshes and is lightly traveled, with access limited to, or through, DFG personnel. The Sonoma Pipeline alignment also would cross south of a parking lot that serves as an access point to the Ringstrom Bay Unit. Access may be limited temporarily while construction crews are in the immediate area. This impact could be significant. Implementation of **Mitigation Measure 3.13.2** would reduce this impact to a less-than-significant level.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline Phase 1 projects would provide 46 miles of new pipeline, 1,655 horsepower (HP) of pumping capacity, treatment facilities providing 6.4 million gallons per day (mgd) of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to recreation facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would upgrade tertiary treatment capacity at the LGVSD WWTP and construct a new booster pump station; NMWD install one of three pipeline options, described in **Chapter 2, Project Description**, which would connect the LGVSD WWT Recycled Water Treatment Facility to facilities constructed by NMWD. Construction of pipeline Options A, B, or C in the Novato South Service Area would occur adjacent to the John F. Mcinnis Park on Smith Ranch Road. The Coast Guard Housing Loop portion of the proposed pipeline would occur near bikeways along Hamilton Parkway, Hangar Avenue, Main Gate Avenue and Smith Ranch Road. Also the San Francisco Bay Trail is adjacent to John F. Mcinnis Park. Users of the Regional Park, trails and bikeways may experience temporary impacts from noise, dust, traffic, and visual intrusion from pipeline construction. Construction-related impacts would be reduced to a less–than-significant level with implementation of mitigation measures identified in **Sections 3.7, Transportation and Traffic, 3.8, Air Quality;** and **3.9, Noise**.

Pipeline construction would temporarily disrupt a portion of the San Francisco Bay Trail at several locations. Segments of Pipeline Options A and B, proposed adjacent to the LGVSD WWTP ponds, would potentially cross portions of the San Francisco Bay Trail. In addition, segments of the Option C pipeline between the LGVSD WWTP and Main Gate Road would be installed along a half-mile portion of the existing San Francisco Bay Trail along Hamilton Parkway. Under all of the pipeline options, a 25-foot-wide construction work zone would require the temporary closure of the entire trail for approximately two weeks. For the majority of the trail, there would be no readily available detour route if the corridor were closed during construction hours. However, this would be a short-term effect as full access to the trail would be restored upon completion of construction operations. Implementation of **Mitigation Measure 3.13.1a** would provide a partial impact reduction. Specific requirements may be included in the traffic management plans (see **Mitigation Measure 3.7.1a**, in **Section 3.7, Transportation and Traffic**).

Novato SD/NMWD

Construction of North/Central Service Area of the recycled water pipeline could temporarily disrupt adjacent parks- Slade Park, Scottsdale Pond Park, Arroyo Aviche Park, Hill Recreation Area, Olive Park- and bikeways along Novato Boulevard, Rowland Boulevard, Redwood

Boulevard, Hill Road, Atherton Avenue, and Olive Avenue. Construction-related impacts would be similar to that discussed above and would be reduced to a less-than-significant level with implementation of mitigation measures identified in **Sections 3.7, Transportation and Traffic, 3.8, Air Quality;** and **3.9, Noise**. Access to Hill Recreation Area, Olive Park, and Scottsdale Pond Park may also be may be affected by pipeline construction and could have significant impacts. Implementation of **Mitigation Measure 3.13.2** would reduce this impact to a less-than-significant level.

SVCSD

Under Phase 1, impacts related to the SVRWP pipeline alignment and the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

Construction of MST Phase 1 of the recycled water pipeline could temporarily disrupt adjacent parks- Skyline Wilderness Park, and the Napa Valley Country Club- and bikeways along Imola Avenue. Construction-related impacts would be similar to that discussed above and would be reduced to a less than significant level with implementation of mitigation measures identified in **Sections 3.7, Transportation and Traffic, 3.8, Air Quality;** and **3.9, Noise**. Access to Skyline Wilderness Park may also be may be affected by pipeline construction and could have significant impacts. **Mitigation Measure 3.13.2** would reduce this impact to a less than significant level.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to recreational facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Basic System, project construction would involve increasing tertiary treatment capacity by at the LGVSD WWTP by 0.3 mgd through onsite improvements. As discussed above, no additional impacts that would affect recreational facilities are expected.

Novato SD/NMWD

Novato SD the Basic System of NBWRP would involve pipeline installation along existing roadways between the Novato SD WWTP and the Petaluma River and increasing tertiary treatment capacity at the Novato SD treatment plant by 1.2 mgd. Treatment upgrades would be similar to those discussed above and would not cause significant impacts. Pipeline installation

could temporarily disrupt parks and bikeways in the vicinity of the project. Construction-related impacts would be similar to that discussed above for Phase 1**.**

SVCSD

Construction of SVRWPAlignment 2 of the recycled water pipeline would temporarily disrupt adjacent parks—including Sonoma City Park, Depot Park, Arnold Field, and Field of Dreams—and bikeways along Broadway, Napa Road, 5th Street East, and MacArthur Street. Construction-related impacts would be similar to that discussed above and would be reduced to a less than significant level with implementation of mitigation measures identified in **Sections 3.7, Transportation and Traffic, 3.8, Air Quality**; and **3.9, Noise**. Access to Arnold Field and Sonoma City Park may also be may be affected by pipeline construction and could have significant impacts. Implementation of **Mitigation Measure 3.13.2** would reduce this impact to a less-than-significant level.

In addition, the Bike Path Segments of Alignment 2 would be installed along a three-quarter-mile portion of the existing Sonoma Multi-Use Trail. The 25-foot wide construction work zone would require the temporary closure of the entire trail for approximately two weeks. For the majority of the trail, there would be no readily available detour route if the corridor were closed during construction hours. Therefore, the impact would be significant and unavoidable during the construction period. However, this would be a short-term effect as full access to the trail would be restored upon completion of construction operations. Please refer to the discussion above under LGVSD.

Construction of Alignment 3 of the recycled water pipeline would temporarily disrupt bikeways along 8th Street East, Napa Road, and Denmark Road, including the proposed Sonoma Trail and Sonoma-Schellville Trail along 8th Street East. Construction-related impacts would be similar to that discussed above and would be reduced to a less than significant level with implementation of mitigation measures identified in Sections 3.7, Transportation and Traffic, 3.8, Air Quality; and 3.9, Noise.

Impacts from construction associated with the proposed operational and capacity storage reservoirs and distribution pump station not directly adjacent to recreational facilities would be similar to that discussed above. The activities could disrupt the bikeway along 8th Street East, however, due to the temporary nature of this impact, it would be considered less than significant. The proposed booster pump station would be located near the intersection of Napa and Denmark Roads. Both roadways are proposed Class II bikeways. Construction-related impacts would be similar to that discussed above and would be reduced to a less than significant level with implementation of mitigation measures identified in **Sections 3.7, Transportation and Traffic, 3.8**, **Air Quality;** and **3.9, Noise**.

Napa SD

Napa SD the Basic System of NBWRP includes service to the Carneros Area, which would involve pipeline installation and a tertiary treatment increase of 5.5 mgd at the Napa SD WWTP. Treatment upgrades would be similar to those discussed above and would not cause significant

impacts. Pipeline installation could temporarily disrupt parks and bikeways in the vicinity of the project; the impacts would be similar to those discussed above.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to recreational facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Partially Connected System, project construction would involve installation of pipeline along existing roadways and a fire road through China Camp State Park to Peacock Gap Golf Course. Construction could temporarily disrupt parks in the project vicinity- China Camp State Park and Peacock Park, trails within China Camp State Park and bikeways along North San Pedro Road. As discussed above, construction could cause users of the park and bikeways to experience temporary impacts from noise, dust, traffic, and visual intrusion from pipeline construction. **Mitigation Measure 3.13.2** would reduce this impact to a less than significant level.

Novato SD/NMWD

Under the Partially Connected System, project construction would involve installation of a pipeline from the LGVSD WWTP north to join a pipeline extending from the Novato SD WWTP and extend the pipeline alignment from the WWTP to serve Sears Point service area, which is a primarily open space. Pipeline installation could temporarily disrupt parks and bikeways in the vicinity of the project; however, the impacts would be similar to those discussed above.

SVCSD

Under the Partially Connected System, project construction would include installation of Southern Sonoma Valley pipelines, construction of a new recycled water storage pond within the existing SVCSD WWTP and construction of additional system storage in the Carneros West Area. Pipeline installation could temporarily disrupt parks and bikeways in the vicinity of the project. The impacts would be similar to those discussed above.

Napa SD

Under the Partially Connected System project construction would involve installation of pipelines in the Carneros East Area and an extension of the Napa MST Area. Pipeline installation could temporarily disrupt parks and bikeways in the vicinity of the project. The impacts would be similar to those discussed above.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to recreational facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above.

Novato SD/NMWD

The Fully Connected System would include installing additional pipelines to serve an extended Sears Point service area. Pipeline installation could temporarily disrupt parks and bikeways in the vicinity of the project. The impacts would be similar to those discussed above.

SVCSD

Under the Fully Connected System, project construction would involve installation of pipelines north toward the Central Sonoma Service Area. Pipelines would extend north primarily in open space and agricultural areas. Pipeline installation could temporarily disrupt parks and bikeways in the vicinity of the project. The impacts would be similar to those discussed above.

Napa SD

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above.

Mitigation Measures

Mitigation Measure 3.13.1a: The appropriate Member Agency shall coordinate with the appropriate local and regional agencies to identify detour routes for the bikeways and trails during construction where feasible, as part of the Traffic Control/Traffic Management Plan (see **Measure 3.11.1a**).

Mitigation Measure 3.13.1b: Implement **Mitigation Measures 3.8-1a** through **3.8.1b**, **Mitigation Measures 3.9.1** through **3.9-3**.

Mitigation Measure 3.13.2: Before beginning construction, the contractor will develop, in consultation with the appropriate representative(s) of the affected park's managing agency, a plan indicating how public access to the park will be maintained during construction. If

needed, flaggers will be stationed near the construction activity area to direct and assist members of the public around the activity areas while maintaining access to the parks.

Impact Significance after Mitigation: Less than Significant with Mitigation.

3.13.4 Impact Summary by Service Area

Table 3.13-8 provides a summary of potential impacts to recreation from implementation of the NBWRP.

TABLE 3.13-8
POTENTIAL IMPACTS AND SIGNIFICANCE – RECREATION

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
Impact 3.13.1: Temporary disturbance to Recreational Facilities.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Basic System	LSM	LSM	LSM	LSM
Partially Connected System	LSM	LSM	LSM	LSM
Fully Connected System	LSM	LSM	LSM	LSM

NI = No Impact
LTS = Less than Significant impact, no mitigation required
LSM = Less than Significant with Mitigation
SU = Significant Unavoidable impact
N/A = Not Applicable

3.13.5 References

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3.14 Aesthetics

Aesthetic resources are generally defined as both natural and built features of the landscape that contribute to the public experience and appreciation of the environment. This section describes the existing aesthetic conditions in the North Bay Water Recycling Program (NBRWP) area and evaluates potential impacts on aesthetic resources as a result of NBWRP implementation. The analysis is based on information obtained during field investigations and from local plans. The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

3.14.1 Affected Environment/Setting

LGVSD and Novato SD

The NBWRP area contains visual resources that are representative of California's Bay Area region, including farmland, meandering creeks, rolling hills and oak woodlands. The LGVSD area is characterized by Hamilton Army Airfield, St. Vincent's School for Boys, Silveira Ranch, China Camp State Park and Peacock Gap, which are situated between urbanized areas of the city of San Rafael, and the communities of Terra Linda, Lucas Valley and Smith Ranch. The Miller Creek corridor, an important natural area, is east of U.S. Highway 101 and serves as a centerpiece of the watershed. The hills between the city of San Rafael and the surrounding communities are scenic topographical features. Large areas of open space that contain undeveloped ridgelines, hillsides, and oak tree groves also contribute to the natural scenic beauty of the area.

Hamilton Army Airfield is located in the Novato South Service area. The former Hamilton Air Force Base is now a planned community that consists of housing, restaurants, office buildings, a church, library, and theater. A trail network has been established around the Bay and in the hills. While a significant amount of bayfront lands have been protected as open space through acquisition of Hamilton Army Airfield Runways, the Marin Countywide Plan has identified the Hamilton Air Force Base as the largest available site for commercial and industrial development (Marin County, 2007).

The *Marin Countywide Plan* also recognizes the importance of the historical and agricultural legacies of the St. Vincent's and Silveira Ranch areas, which consist of approximately 1,110 acres east of Highway 101 in the unincorporated area of the county between the cities of San Rafael and Novato. Two properties: the 770-acre Catholic Youth Organization/St. Vincent's School for Boys and the 340-acre Silveira Family Ranch are important land uses in the county. The school building is a California historical landmark and is partly visible from Highway 101. Silveira Ranch provides scenic vistas of grasslands, valley oaks, the Miller Creek riparian corridor, and diked tideland habitats (Marin County, 2007). The level of development in this area is limited under the Marin Countywide Plan, which designates the St. Vincent's and Silveira lands as an urban reserve area within the unincorporated area of Marin County. This area is an integral part of the character of the region due to the visual and aesthetic appearance of the

buildings and surrounding area, and its function as a physical and visual separator between Novato and San Rafael.

China Camp State Park is also in the NBWRP vicinity. The park contains a natural watershed that flows into San Francisco Bay that includes a tidal marsh bordered by meadow and oak habitats. Recreational amenities include camp sites, hiking trails, and picnic areas. China Camp State Park experiences a high volume of visitors throughout the year due to the natural beauty and access to scenic vistas that are characteristic of the Bay Area.

Peacock Gap Golf Course is located on Biscayne Drive in San Rafael, adjacent to China Camp State Park, overlooking the Bay. From the country club and areas throughout the course, there are scenic views of surrounding hills, large residential estates, and the coast.

The City of San Rafael is characterized by scenic hills and valleys, San Francisco Bay, and historic downtown structures. The Mission San Rafael Arcangel, St. Rafael's Church, and many historic homes are notable structures that contribute to the visual quality to the city.

Existing public facilities and water storage facilities include the LGVSD WWTP, and water storage tanks near Hamilton Army Airfield and Atherton Avenue. The WWTP includes primarily low-lying structures that do not obstruct viewsheds or scenic vistas. The storage tanks are located on hillsides and are visible from nearby neighborhoods and roadways. The storage tanks are surrounded by trees and shrubs that help them to blend into the landscape.

Novato SD

The City of Novato is a growing urban area. Commercial development exists along U.S. 101 and is concentrated around areas of Redwood Boulevard and Rowland Boulevard. Scottsdale Pond, a reservoir that provides a scenic buffer between commercial centers, roadways, and residences, is adjacent to the commercial centers. From Scottsdale Pond, visitors get views of Mt. Burdell, which dominates the Novato skyline and is covered by oak woodland and open grassland. The Mt. Burdell Open Space Preserve, maintained and operated by the Marin County Open Space District, hosts a display of wildflowers in the spring. Views of these natural features are accessible by trails that switchback up the hillside.

Indian Valley Open Space Preserve, also maintained and operated by the Marin County Open Space District, contains heavily wooded oak woodlands, Big Rock Ridge, seasonal creeks, and canyons and valleys that open up to grasslands. The trail that traverses the preserve is popular for its views of undisturbed natural areas. Bel Marin Keys in Ignacio is an unincorporated community in Marin County that contains waterfront homes along beautiful lagoons and the Novato Creek. The Coastal Conservancy, in coordination with the San Francisco Bay Conservancy and the U.S. Army Corps of Engineers, has developed a Wetlands Restoration Plan for the Bel Marin Keys Unit V property, located in southeast Novato. This open space contains marshes and waterways that support wildlife and scenic vistas.

California Department of Transportation (Caltrans) has identified segments of U.S. 101 State Route 37 in Novato as "eligible" to be designated as scenic highways (see **Table 3.14-1** for the scenic highways in Marin County). The City of Novato has also established roadways as locally-defined scenic routes. Atherton Avenue, Novato Boulevard and State Route 37 are considered gateways to Novato. The visual character experienced by roadway users is rural, with views of open space obstructed only by natural topography of vegetated rolling hills. Areas east of U.S. 101, along Atherton Avenue toward the Petaluma River are open space, agricultural, coastal agricultural, and rural residential areas.

Existing facilities include the Novato SD WWTP and several storage reservoirs which are primarily low-lying structures that do not obstruct viewsheds or scenic vistas.

TABLE 3.14-1
SCENIC HIGHWAYS IN MARIN COUNTY

Highway Name	Location	Length	Status
State Route 1	Roadway from the northernmost point in the county to the southernmost point in the county	Undefined	Caltrans Eligible Scenic Highway
U.S. 101	North of State Route 37	Several miles	Caltrans Eligible Scenic Highway; City of Novato Scenic Route
State Route 37	East from U.S. 101 east	Several miles	Caltrans Eligible Scenic Highways; City of Novato Scenic Route
Atherton Avenue	East from U.S. 101 east	Several miles	City of Novato Scenic Route
Novato Boulevard	From San Marin Drive to the westerly City of Novato Planning Area boundary	Several miles	City of Novato Scenic Route

SOURCE: Caltrans, 2008; City of Novato, 1996.

SVCSD

Coastal bluffs, vineyards, rolling hills, and mountains define the aesthetic character of Sonoma County (Sonoma County, 1998). In southern Sonoma County, the Sonoma Mountains and Arrowhead Mountains are valuable scenic landscape features. The Sonoma Mountains define the eastern edge of the Santa Rosa plain between the cities of Petaluma and Sonoma. As part of California's coastal range, the mountain peaks are less than 1,000 feet above mean sea level, but provide scenic backdrops to local communities and visual relief from urban densities. Sonoma creek and valleys in the mountains are characterized by riparian forest, and a mixture of deciduous and evergreen tree species, which provide food, water, migration and dispersal corridors, breeding sites, and thermal cover for wildlife.

The NBWRP area includes the city of Sonoma and surrounding unincorporated Sonoma County land, and is characterized by rolling hills with vast expanses of vineyards, agricultural fields, and open space. The NBWRP area includes both undeveloped areas, such as the valley

oak woodlands of the Sonoma Mountains, and urban areas in and around the city of Sonoma. The valley floors of the Sonoma Mountains are generally located on the western edge of the city. The valley landscape is relatively flat and fertile, lending itself to the presence of vineyards and other agriculture. The city of Sonoma contains suburban developments, small neighborhood parks, and commercial buildings.

Caltrans has designated corridors along State Routes 12, 116, and 121 in Sonoma as scenic highways, or corridors that are eligible to be designated as scenic highway (see **Table 3.14-2**). Similarly, the City of Sonoma (2006) has identified Broadway Street as a scenic corridor, and the intersection of Broadway, Leveroni, and Napa Roads as a gateway to the city. The NBWRP area is primarily located along Arnold Drive, Watmaugh Road, Highway 116, and Broadway/ Highway 12. Arnold Drive is a tree-lined residential street that provides distant views of the mountains. The southern gateway at the Broadway/ Napa Road/ Leveroni Road intersection contains visitor-serving uses that feature high quality architecture, open space, landscaping, street trees, lights, unified sidewalk materials, storefront design, street side planters and median planter strips, and sidewalk seating. Verano Avenue is also identified as a gateway to the city. Viewsheds from these major roadways are characterized by varying degrees of development, ranging from open space, agricultural (viticulture and agrarian), and riparian to commercial and residential development. Views of vineyards, rolling hillsides, and open space are evident from rural roads on the eastern and western edges of the NBWRP area. Along Sonoma Creek, views from roadways that cross or parallel the creek, such as Watmaugh Road, are characterized by dense, riparian vegetation.

TABLE 3.14-2
SCENIC HIGHWAYS IN SONOMA COUNTY

Highway Name	Location	Length	Status
Valley of the Moon	Danielli Avenue east of Santa Rosa to London way near Agua Caliente	12 miles	Caltrans Designated Scenic Highway
State Route 116	From State Route 1 east to the Sebastopol City Limit	26 miles	Caltrans Designated Scenic Highway
Various stretches of State Routes 12, 121, and 116 in the City of Sonoma	Highway 116 from Sebastopol to Rohnert park area; Highway 12 from Highway 101 in Santa Rosa to Highway 121 north of Sonoma; Highway 121 in Sonoma to Highway 37	Undefined	Caltrans Eligible Scenic Highways
Napa Road	Broadway east then south to Fremont Drive/ State Routes 12 and 121	5 miles	County Designated Scenic Corridor
Verano Avenue	Intersection of Verano Avenue and State Route 12	-	City of Sonoma gateway
Four Corners	Intersection of Broadway/ Leveroni Road/ Napa Road	-	City of Sonoma gateway

SOURCE: Caltrans, 2008; City of Sonoma, 2006

The Greenbelt is an important visual resource in the City of Sonoma consisting of hillsides and agricultural land that surrounds the city. Open space within the city is comprised of agricultural land, hillsides, creeks, riparian corridors, parks and small pockets of vineyard, garden, grazing, and horse pasture land. Two notable waterways that exist in Sonoma are Nathanson Creek, which flows from the northeast corner of the City through the east side residential area, and Fryer Creek, which flows from the west to the southwestern area of the city. Schocken Hill is another distinct visual resources. The hillside north of Vallejo Home State Park also contributes to the visual character of the area and remains protected as open space.

Existing facilities include the SVCSD WWTP and the City of Sonoma storage tanks. The WWTP includes primarily low-lying structures that do not obstruct viewsheds or scenic vistas. The storage tanks are located on a hillside and are visible from nearby neighborhoods and roadways. The storage tanks are surrounded by trees and shrubs that help them to blend into the landscape.

Napa SD

Natural scenery and the vineyards and wineries form the community character of the Napa County. The landscape is characterized by a mosaic of orchards and cultivated agricultural fields, vineyards, dairies, pasture, and rural residences, bordered to the east by mountains, hills, and valleys, and Lake Berryessa to the north. The scenery of these areas range from redwood and oak forests to rolling grass covered hills. Lake Berryessa, one of the largest lakes in California, is in Napa County. The land uses in the unincorporated areas outside of the City jurisdiction are urbanized, non-agricultural rural residential uses or open space agricultural uses in the Coombsville planning area and south of the Silverado planning area. The south county contains more of the industrial uses. Important visual resources identified in the General Plan include:

- Agricultural land, particularly the Hess Vineyard (located in southern Napa County east of the airport), and areas surrounding the city of Napa;
- Open space;
- The Napa River, which flows from the headwaters of Mt. St. Helena to San Pablo Bay through varied landscapes of forested mountain slopes, vineyards, urban areas, open pasture, grasslands, industrial zones, and marshes;
- Landmarks, including the di Rosa Preserve, Trubody Ranch, and August Hirsh Winery;
- Unique urban centers in Rutherford and Oakville, which host visitor-serving commercial uses, wineries, and other historic attractions; and
- Scenic highways.

There are approximately 280 miles of county-designated scenic roadways in Napa County. Although none of the roads are officially designated as State Scenic Highways, segments of Highway 29, State Route 121 and State Route 221 are eligible for scenic highway designation (Napa County, 2007). **Table 3.14-3** shows the scenic highways in Napa County.

TABLE 3.14-3
SCENIC HIGHWAYS IN NAPA COUNTY

Highway Name	Location	Length	Status
State Route 29	Roadway from the northernmost point in Napa County to the intersection with State Route 121	Approximately 20 miles	Caltrans Designated Scenic Highway
State Route 121	State Route 121 near Napa, south to the southern Napa County line	Approximately 12 miles	Caltrans Designated Scenic Highway
Dry Creek Road	Napa County	Undefined	County Designated Scenic Roadway
Petrified Forest Road	Napa County	Undefined	County Designated Scenic Roadway
Deer Creek Road	Napa County	Undefined	County Designated Scenic Roadway
Pope Canyon Road	Napa County	Undefined	County Designated Scenic Roadway
Wooden Valley Road	Napa County	Undefined	County Designated Scenic Roadway
Berryessa Knoxville Rd	Napa County	Undefined	County Designated Scenic Roadway
Oakknoll Road	Napa County	Undefined	County Designated Scenic Roadway
Yountville Cross Road	Napa County	Undefined	County Designated Scenic Roadway
Zinfandel Lane	Napa County	Undefined	County Designated Scenic Roadway
Lodi Land	Napa County	Undefined	County Designated Scenic Roadway
Bale Lane	Napa County	Undefined	County Designated Scenic Roadway

SOURCE: Napa County, 2007; Caltrans, 2008

Napa County has a diverse plant life, including oak woodlands, grasslands, mixed serpentine chaparral, mixed willow riparian forests, redwood forests, and vernal pools. The landscape has a varied topography, with peaks and valleys, rolling hills, numerous microclimates, and many creeks, streams, and rivers.

The Napa Milliken-Sarco-Tulocay (MST) Area includes areas in the city of Napa and portions of Napa County. The unincorporated areas are designated for rural residential, open space, watershed, and agricultural uses by the Napa County General Plan. State Route 121, north of Imola Road, within the MST area, is designated as a scenic corridor by the City of Napa. The City is bound by designated greenbelt land, which borders the MST area to the east.

The Carneros area is situated slightly southwest of the city of Napa in unincorporated areas of the County. The visual character of the area is rural, as the predominant land use is agriculture. Views from Sonoma Highway, Las Amigas Road, and Duhig Road include agricultural scenery

and flat terrain. A residential community is located near the intersection of Sonoma Highway and State Route 12. To the south, the Carneros area is bordered by the Napa Salt Marsh.

3.14.2 Regulatory Framework

State

CalTrans administers the State Scenic Highways Program to preserve and protect scenic highway corridors from projects that would diminish the aesthetic value of lands adjacent to highways (Sections 260 *et seq*. of the California Streets and Highways Code). Scenic highway corridors are defined as the land generally adjacent to and visible by motorists from a scenic highway. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 of the Streets and Highways Code.

Officially designated state scenic highways within the NBWRP area include State Route 29, portions of State Route 12, and portions of State Route 121 (CalTrans, 2005). The portion of Highway 12 that crosses through the NBWRP area is an eligible state scenic highway.

Local

Other local general plans, policies, and regulations associated with impacts to aesthetic resources within the affected jurisdictions are presented in **Appendix 3.14**. The goals, policies, and programs applicable to aesthetics were considered in this analysis to define scenic resources, determine NBWRP consistency with policies, and evaluate significant impacts in the following section.

3.14.3 Environmental Consequences/ Impacts

Significance Criteria under CEQA

Based on the Appendix G of the *CEQA Guidelines*, NBWRP implementation would have significant impacts and environmental consequences on aesthetic resources if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially degrade the existing visual character of the site and its surroundings;
- Substantially damage scenic resources, such as scenic highway corridors and scenic landscape units;
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area; or
- Conflict with adopted environmental plans.

Impairment of existing aesthetic resources may result from the degradation of a visual feature that has aesthetic significance, or from the introduction of objects or patterns that exhibit a relatively high degree of visual contrast with the existing objects and patterns on the site. Physical changes

that may impair the quality of important views include changes in scale, form, color and texture of natural features existing on the site. Such changes could result from new structures, grading and excavation, landscaping, or elimination of existing vegetation.

Environmental Consequences/Impact Analysis

Impact 3.14.1: Temporary Impact to Scenic Vistas. NBWRP construction activities could temporarily affect scenic vistas or corridors in the NBWRP area. (Less than Significant with Mitigation)

NBWRP construction could cause temporary disruption of existing visual resources. However, NBWRP activities would involve improvements that would partially occur at existing WWTP facility sites and roadway right-of-ways, thereby reducing the likelihood for conflicts with aesthetics during construction. Treatment upgrades within the WWTP sites would have no impacts to aesthetics because the existing visual character of the sites is already industrial and utilitarian. In most cases, the impacts would be short-term and intermittent, and disruption of visual resources would be considered less than significant. Furthermore, measures to limit certain temporary construction impacts to aesthetics would be implemented as mitigation. Although pipeline installation would progress along the local roadways, construction would only affect a specific location for a short period of time. Staging areas associated with these projects could be used for a longer period of time. In addition, any projects involving nighttime construction would require lighting, and adjacent areas could be exposed to visual impacts associated with nighttime construction (see **Impact 3.14.3**).

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

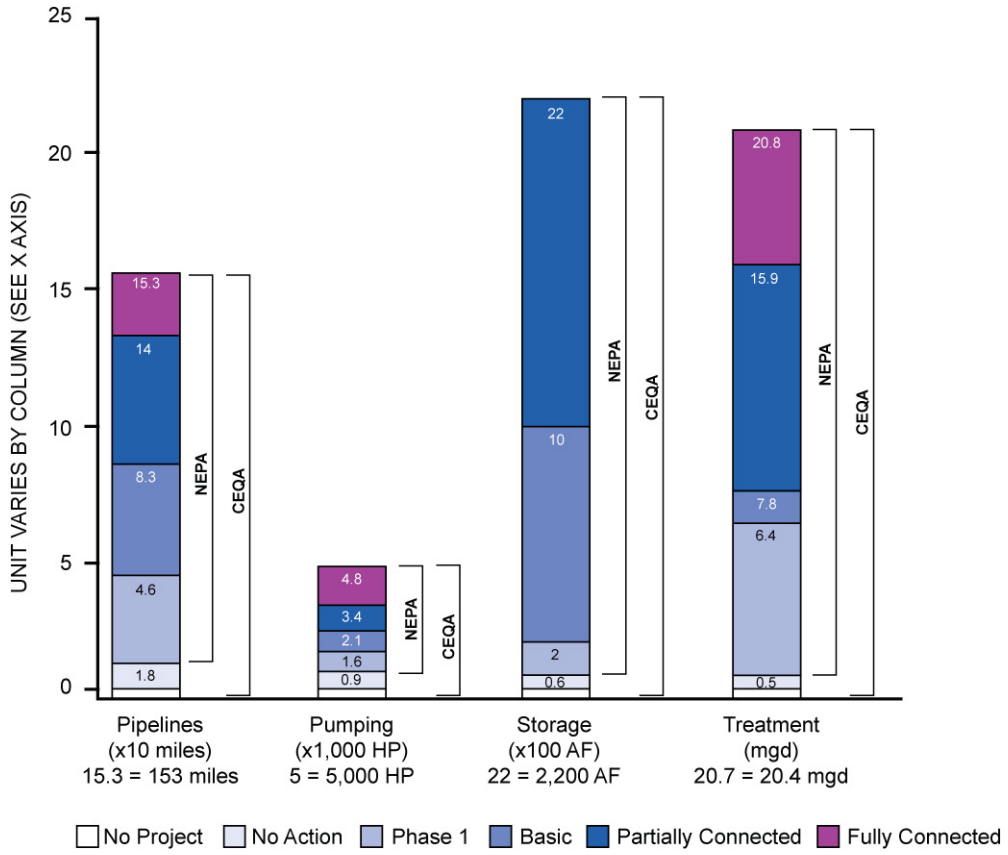
No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.14-1, No Action**).

Under future baseline (2020) conditions, scenic vistas within the region are anticipated to be similar to existing conditions in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

CHART 3.14-1
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

The No Action Alternative would consist of construction of 4.4 miles of pipeline in the Novato North Service Area, 0.5 mgd upgrade at the Recycled Water Treatment Plant, and one pump station at the intersection of Atherton Avenue and Olive Avenue. Pipeline installation would occur from the Novato SD WWTP north to Olive Avenue, then extend along Olive Avenue to serve areas north of Atherton Avenue, along Redwood Boulevard, and along San Marin Avenue west of U.S. 101. Views experienced by roadway users from these roadways include scenic vistas of hillsides, oak woodlands, and agricultural resources. Construction of recycled water pipelines would result in short-term impacts to scenic resources. Construction activities would require the use of heavy equipment and storage of materials at construction sites. During construction,

excavated areas, stockpiled soils, and other materials within the construction easement and staging areas would constitute negative aesthetic elements in the visual landscape. Impacts from dust, excavation, drilling, and road closures could reduce pedestrian access, uproot street trees, displace landscaping and streetscaping, and damage sidewalk materials. However, these impacts are temporary and associated with short-term construction and would be reduced to a less-than-significant level with implementation of **Mitigation Measures 3.14.1a** through **3.14.1c**. Upgrades at the Recycled Water Treatment Facility would have a less-than-significant impact on aesthetics because the upgrade activities would be mostly confined within the existing WWTP property and would generally be consistent with the existing visual character of the site. Construction of the pump station would cause short-term impacts such as dust and noise, but impacts would be mitigated by measures identified in **Sections 3.8, Air Quality,** and **3.9, Noise**.

SVCSD

SVCSD would implement Sonoma Valley Recycled Water Project (SVRWP) pipeline Alignment 1A, which would result in short-term construction impacts to scenic landscapes, scenic corridors, and scenic vistas. Alignment 1A includes a main pipeline that would originate from the SVCSD WWTP, extend southwest and then northwest through a vineyard to Arnold Drive. The pipeline would continue north along Arnold Drive to Orange Avenue, and extend north on Orange Avenue to Elm Avenue. The pipeline would then continue east on Elm Avenue, cross a field to Arnold Drive, extend north on Arnold Drive, and terminate just north of Leveroni Road. Secondary pipelines would extend from the main pipeline on Highway 116, Watmaugh Road, and Leveroni Road. The eastern portions of the proposed pipeline corridor are predominantly rural agricultural areas. The area from the SVCSD WWTP to Arnold Drive is almost exclusively vineyard land. There are several residential and agricultural structures just west of State Route 12 that would be affected for several days during construction. Construction activities would not be visible from any roadways until the pipeline corridor reaches Arnold Drive. There are intermittent residences along the southern portion of Arnold Drive, but views from the residences of the roadway are partially screened by trees. Residences along Orange Avenue are mostly setback from the road and screened by trees. Views of vineyards experienced by roadway users would temporarily be obstructed during construction. The northern portion of Orange Avenue and where the pipeline would re-connect with Arnold Drive contains residences with views that would be temporarily affected during construction. Construction of the secondary pipelines along Highway 116 and Leveroni Road would disrupt open views of vineyard areas during the short-term construction period. Construction of the pipelines would result in impacts similar to those discussed under Novato SD, and would be reduced to a less-than-significant level with incorporation of **Mitigation Measures 3.14.1a** through **3.14.1c**.

As discussed in the SVRWP EIR, construction of the proposed pump station would result in a short-term impact to aesthetic resources. The distribution pump would be located at the existing SVCSD WWTP, which is an industrial site surrounded by agricultural land uses. Construction and grading activities, potentially visible to vehicles traveling on Schellville Road or 8th Street, adjacent to the WWTP, would result in impacts similar to those discussed above. However, the effects would be temporary during project construction and would be mitigated to less than significant by measures identified in **Sections 3.8, Air Quality**, and **3.9, Noise**.

The proposed pipeline alignment and alternative routes under the Napa Salt Marsh Restoration Project would traverse areas of cultivated vineyard and open areas. Construction of the pipeline would result in impacts similar to those discussed for Novato SD above. Construction activities would affect views from Green Island Road, Milton Road, Las Amigas Road, and Buchli Station Road. Construction activities would temporarily alter scenic views along the pipeline route; however there are no sensitive residential receptors with views of the area. There is one winery located near Ramal Road and Duhig Road that would potentially be affected by construction activities for a short period. Construction- related impacts would be temporary, as pipelines would be buried underground, and disturbed areas would be restored.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline Phase 1 projects would provide 46 miles of new pipeline, 1,655 horsepower (HP) of pumping capacity, treatment facilities providing 6.4 million gallons per day (mgd) of tertiary capacity, and 65 acre-feet (AF) of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to scenic vistas under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would upgrade tertiary treatment capacity at the LGVSD WWTP and construct a new booster pump station. NMWD would install one of three pipeline options, described in **Chapter 2, Project Description**, which would connect the LGVSD WWTP to facilities constructed by NMWD. The level of impact on visual resources in the LGVSD service area would be incrementally greater under Phase 1 than the level of impact under the No Action Alternative in the LGVSD service area.

Construction of the pipelines would result in impacts similar to those discussed under Novato SD. NBWRP could affect scenic vistas as protected by the *City of Novato General Plan* and the *Marin Countywide Plan*. Portions of Pipeline Options A, B, and C in Marin County would traverse through designated open space and agricultural land and occur adjacent to St. Vincent's and Silveira Ranch. Since this area is important to the character of the community and is a prominent feature on the landscape, the NBWRP could affect the views of St. Vincent's from surrounding roads and structures. Construction activities would be visible to the residential communities along the hillside at the border between the Novato and San Rafael, particularly along Club View Drive. However, residences along Bolling Circle adjacent to the pipeline corridor are screened by trees

and would not be affected. Views from residences along South Oakwood Drive and Hangar Avenue would temporarily be affected during the short-term construction period. However, these effects would be temporary during NBWRP construction and would not significantly impact the long-term visual character of the area. Surface restoration would involve repaving roadways and replanting grasses, shrubs, and trees in unpaved areas outside of the roadways (see **Mitigation Measure 3.14.1a**).

Novato SD/NMWD

The components that are reasonably likely to occur under the No Action Alternative, including the pipeline in the North Service Area along Olive Avenue and Atherton Avenue, would also be implemented under Phase 1; and would therefore have identical impacts to aesthetics. Additional short-term construction impacts would occur under Phase 1, as additional pipeline would be installed in the Central Service Area, so impacts to aesthetics would be incrementally greater under Phase 1 compared to the No Action Alternative.

Novato North Service Area. Impacts to scenic vistas from construction of proposed recycled water pipelines would be similar to those discussed under the No Action Alternative. Additional impacts would occur to scenic vistas on Atherton Avenue, Olive Avenue, Redwood Boulevard, Delong Avenue, Novato Boulevard, and South Novato Boulevard. Other sensitive visual resources in the vicinity of the proposed pipeline corridors include wetlands in the Ignacio/ Bel Marin Keys area, and large areas of oak woodland (in the Atherton Avenue vicinity) are proximate to proposed construction areas.

NBWRP construction would have similar impacts on scenic vistas compared to those discussed under Novato SD for the No Action Alternative; however these impacts would be less than significant with mitigation (see **Mitigation Measure 3.14.1a**).

Installation of the proposed booster pump station near the intersection of Atherton Avenue and Olive Avenue could result in short-term impacts to aesthetic and scenic resources, as discussed above under Phase 1. Construction and grading activities would require the use of heavy equipment and storage of materials on-site. During construction, excavated areas, stockpiled soils, and other materials at the construction site and staging areas would constitute negative aesthetic elements in the visual landscape. Vegetation would be removed in order to install the pump station and to connect the pump station to the existing Plum Street Tank. However, construction would last for a short time period and the architecture of the pump station housing would be designed to blend in with the surrounding environment. Landscaping around the structure and revegetation along the distribution connection would restore the appearance of the disturbed area. (see **Mitigation Measures 3.14.1a** and **3.14.1c**). This would reduce the short-term effects of the booster pump station on aesthetic resources to a less-than-significant level. The Plum Street Storage Tank that will support the new booster pump station is an existing structure, and therefore does not impact visual resources.

Novato Central Service Area. Please refer to the discussion under Novato North Service Area. The major roadways that would be affected under Phase 1 are Redwood Boulevard, Rowland

Boulevard and Hill Road. The proposed pipeline corridor would traverse along Redwood Boulevard, adjacent to Scottsdale Pond, which receives pedestrians and cyclists for its aesthetic qualities. Construction in the area would cause a significant impact which would be minimized by implementation of **Mitigation Measure 3.14.1a**.

SVCSD

Phase 1 will cause an incrementally greater impact to aesthetics during construction because it includes more pipeline and additional built structures. In general, the impacts would be less-than-significant after incorporation of **Mitigation Measure 3.14.1a**.

Phase 1 of the NBWRP would include implementation of SVRWP pipeline Alignment 1A. Impacts associated with implementation of the SVRWP component include short-term construction impacts to scenic landscapes, scenic corridors, and scenic vistas similar to those discussed under SVCSD for the No Action Alternative.

The eastern portions of the proposed pipeline corridor are predominantly rural agricultural areas. The implementation of Alignment 1A would include construction of approximately 5.2 miles of pipeline in western Sonoma Valley and one pump station at the SVCSD WWTP. The eastern portions of the proposed pipeline corridor are predominantly rural agricultural areas (see discussion under SVCSD for No Action Alternative above).

As discussed in the SVRWP EIR, construction of the proposed pump stations would result in short-term impacts to aesthetic resources. The distribution pumps would be located at the existing SVCSD WWTP, which is an industrial site surrounded by agricultural land uses. Construction and grading activities would result in impacts similar to those discussed above. The effects would be temporary during project construction and would not significantly impact the long-term visual character of the area. Construction of the pump stations would result in a similar impact to that discussed under the No Action Alternative. Under Phase 1, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

Napa SD

Under Phase 1, approximately 17.5 miles of additional pipeline and four additional booster pump stations along pipeline routes, and one pump station at the Napa SD WWTP would be constructed. Phase 1 represents an incremental increase in short-term construction impacts to aesthetic resources compared to the No Action Alternative. Phase 1 would have less than significant short-term construction impacts, after mitigation, to aesthetic resources. The land uses surrounding the proposed pipeline corridor in the MST area are primarily rural residential and agricultural, so staging activities and machinery from construction would contrast with the existing scenery. Many residences are screened from adjacent roadways by street trees. Construction activities would be temporarily visible from some vantage points of the Napa Valley Country Club golf course. Construction impacts would be similar to those discussed above and would be reduced to less-than-significant levels by implementation of **Mitigation Measure 3.14.1a**.

The proposed pump station at the WWTP would be consistent with the existing visual character of the WWTP facility; therefore there is a less than significant impact associated with that pump station. The other proposed pump station sites are along existing roadways in areas surrounded by residential and agricultural land uses. Construction of the proposed pump stations would temporarily disrupt the scenic vistas and viewsheds from residences and of agricultural land in this area and would have similar impacts as discussed above. The pump stations housings would be 15 to 20 feet above grade, introducing a new, contrasting object into the landscape that could be incompatible with existing views and vistas from the existing residences in the site vicinity. The proposed pump station sites on Coombsville Road and East 3rd Street are adjacent to both low density residential and cultivated agricultural land, while the proposed site on North 3rd Avenue is surrounded primarily by vineyards. The proposed Imola Avenue site is undeveloped, and surrounded by underutilized land and commercial space. Vegetation would also be removed for installation of the pump stations. This could be a significant impact, which would be minimized by implementation of **Mitigation Measures 3.14.1a** and **3.14.1c**.

Alternative 1: Basic System (Program Level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to scenic vistas under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

In general, implementation of NBWRP components will result in short-term construction impacts and temporary disturbance to aesthetics. Installation of pipelines would occur predominantly along existing roadways, however construction activities could temporarily obstruct the views of roadway users. Construction of new pump stations and storage reservoirs would disturb vegetation and permanently alter the existing landscape. Treatment upgrades would not affect aesthetics because they are generally consistent with existing land uses, therefore are not discussed further.

LGVSD/NMWD

There would be no additional short-term construction impacts to visual resources in the LGVSD service area under the Basic System that were not previously discussed under Phase 1. Additional NBWRP components would be constructed at the existing WWTP site and at an existing reservoir. These facilities are already part of the existing landscape, so construction impacts will be less than significant.

Novato SD

The Basic System would involve onsite improvements to increase tertiary treatment capacity at the Novato SD WWTP, utilize existing available storage, and rehabilitate of one water reservoir. An additional segment of pipeline would be constructed to connect the Novato SD recycled water facilities to serve the Sears Point area. Construction of the recycled water pipelines would result in short-term impacts to scenic resources. Impacts to aesthetic resources would be greater that the impacts described for Novato SD under the Phase 1 and the No Action Alternative, proportionate to the amount of facilities. Construction-related impacts would be similar to those discussed above and would be reduced to less-than-significant levels by implementation of **Mitigation Measure 3.14.1a**.

Utilization of existing storage tanks would not induce short-term impacts to visual resources because they are existing units of the landscape and will require no additional construction or altered operational activities.

Re-operation of the existing storage tanks would not require new construction. The activities required to refurbish the storage tanks would not disturb the character of the hillside area, which is surrounded by open space and parkland. Therefore, short-term impacts to aesthetic resources would be less than significant.

SVCSD

In addition to the impacts to visual resources in the SVCSD service area under Phase 1, short-term disturbance impacts under the Basic System would include effects from the interconnectivity between SVCSD and Napa SD to serve the Napa Salt Marsh Restoration Area. The General Plans for Napa and Sonoma Counties, as well as the Cities of Napa and Sonoma govern the visual resources along the proposed pipeline corridor, which would extend through areas in both Sonoma and Napa Counties to the Napa Salt Marsh.

Under the Basic System, pipeline connection between Arnold Drive and Broadway would be extended via Leveroni and West Watmaugh Roads. These extensions represent an incremental increase in temporary construction impacts to visual resources. The pipeline extension areas would occur along existing roadways, which are bordered primarily by vineyards. Views of the vineyard from the roadway would be temporarily obstructed to vehicular traffic. There are several residences along Leveroni Road, but their views of the street are screened by trees. The Basic system would extend the pipeline on Arnold Drive north to El Rancho Feliz Road and branch out on Orange Avenue. This extension corridor is bordered by residences with views on the street. The northern end of the extension on Arnold Drive would occur adjacent to a golf course and vineyards, which would temporarily affect views from the country club and disturb views of the scenic vineyards.

The pipeline corridor from the WWTP to Specht Road traverses agricultural land, and construction activities would not be directly visible to any sensitive receptors. Broadway has been locally-defined as a scenic corridor and a gateway to the city; therefore short-term construction would affect scenic views along this roadway. The eastern pipeline corridor extends east from the

WWTP, traverses a large area of vineyard, extends north to Napa Road, parallel to Hyde road, and then extends along Napa Road, Denmark Street and 8th Street East. Construction in this area would generally not be visible to sensitive receptors or roadway users. The impacts would be similar to those discussed above and would be minimized by implementation of **Mitigation Measure 3.14-1a**.

Installation of the proposed distribution pumps would not result in significant short-term construction impacts or long-term operational impacts to aesthetic resources. The pumps would be located at the existing SVCSD treatment facility and would not introduce a new contrasting object into the landscape. Similarly treatment upgrades, including the creation of additional storage, would occur within the existing WWTP property, which is an industrial site surrounded by agricultural land uses. Construction and grading activities could be visible to vehicles traveling on Schellville Road or 8th Street, adjacent to the WWTP. However, these effects would be temporary during project construction and would not significantly impact the long-term visual character of the area.

The Basic System would also include construction of a new recycled water storage pond near the SVCSD WWTP. Pond construction will require excavation, stock piling of materials, and presence of construction vehicles. The precise location of the pond is undetermined, assuming a conservative approach, construction could be viewed from 8th Street, Schellville Road by passing vehicular traffic. Short-term impacts during construction would be mitigated with the implementation of measures to limit construction at a location, restore affected roadways by repaving, and revegetating disturbed areas (**Mitigation Measures 3.14.1a** through **3.14.1c**).

Under the No Action Alternative, the SVRWP components would cause short-term construction impacts to visual resources. The majority of the SVRWP components are part of the NBWRP, so the impacts under both alternatives would be the same for overlapping pipeline components. The Basic System also requires additional pipelines and ponds; therefore there would be an incremental increase in impacts to aesthetics if the Basic System is implemented.

Napa SD

The Basic System would involve onsite improvements to increase tertiary treatment capacity at the Napa WWTP and reconfiguration of existing WWTP storage ponds. These activities would not alter the existing appearance of the WWTP or the pond area. Short-term impacts to aesthetic resources associated with WWTP improvements would be less than significant.

The Basic System would involve construction of additional pipelines that would affect scenic landscape units and vistas protected by the city and county. The impact would be similar to that discussed above minimized by implementation of **Mitigation Measure 3.1.1a** for the additional segments.

Proposed pipelines under the Basic Alternative represent an incremental increase in temporary impacts to aesthetics during the short-term construction period compared to the No Action

Alternative. A greater volume of pipelines would be implemented in addition to the pipeline and pump station proposed under the MST component.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to scenic vistas under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under the Partially Connected System, NBWRP involves construction of additional recycled water pipelines to extend service to the Peacock Gap Golf Course that would result in short-term impacts to scenic resources. The Peacock Gap Golf Course is located in San Rafael on the Bay, and is surrounded by hills, which act as a buffer between the golf course and the nearby community of Santa Venetia. China Camp State Park is also adjacent to the Peacock Gap Golf Course. There is potential for views from the State Park and park trails to be obstructed or altered by construction activities or staging sites. The pipeline would likely traverse areas of open space that abut the hills adjacent to the golf course. Since these are considered visual resources under the local plans, the proposed pipeline conflicts with policies under the local plans. Construction-related impacts would be similar to those discussed above under the Basic System and would be reduced to less-than-significant levels by implementation of **Mitigation Measure 3.14.1a** for the additional segments.

Utilization of the existing recycled water distribution system would not require new construction, and there are no short-term or long-term impacts to visual resources associated with continued operation of the system.

Re-operation of the existing storage reservoir near Peacock Gap Golf Course would not require new construction. The activities required to refurbish the storage tanks would not disturb the character of the hillside area, which is surrounded by open space and golf amenities. Therefore, short-term impacts to aesthetic resources would be less than significant. There would be no long-term impacts to aesthetic resources due to the re-operation of the existing reservoir because the reservoir is an existing physical feature.

Implementation of additional NBWRP components under the Partially Connected System represent an incremental increase in adverse effects from short-term construction impacts compared to the No Action Alternative, which has no anticipated aesthetic effects from construction in the LGVSD.

Novato SD/NMWD

In addition to the components described under the Basic System, the Partially Connected System would include construction of the recycled water pipelines that Novato SD would install to serve portions of the Novato Urban Recycled Water Action area and connect LGVSD and Novato SD through a joint pipeline to serve the Sears Point area, which would result in short-term impacts to scenic resources. Construction impacts would be similar to those discussed above under the Basic System and would apply to the additional pipelines. **Mitigation Measure 3.14.1a** would minimize the impact.

In the Novato North Service Area, the pipeline corridor would occur within existing roadways that have not been designated as scenic highways. The area is urbanized and built up, so impacts to views from residences or other sensitive areas could be significant.

In the Hamilton Field Area, a pipeline would extend from Long Point, to the east of Hamilton Army Airfield, and along Bel Marin Keys to State Route 37. This area is characterized by the views from the waterfront residences at Bel Marin Keys and the scenic views of open space protected as part of the San Pablo Bay National Wildlife Refuge. Construction would be visible by vehicles along Perimeter Road and Bel Marin Keys Boulevard, and from trails in the in the hills near Hamilton Field.

In the Central Novato Service Area, recycled water pipeline would extend along Alameda del Prado Road, Nave Drive, and Ignacio Boulevard. Construction will occur along existing roadways in urbanized areas. The roadways experience high volumes of traffic, especially along U.S. Highway 101, so construction activities would be highly visible for a short time period to a large number of people.

In general, the effect on the views from the residences, recreational areas, and vehicles would be temporarily impacted by construction activities. Implementation of **Mitigation Measure 3.14.1a** would reduce the impacts to less-than-significant levels.

Re-operation of an existing water reservoir located in the northern portion of the Novato Urban Recycled Water Action area would not require new construction. Impacts would be similar to those discussed under LGVSD above.

Implementation of the Partially Connected System would incrementally increase adverse effects from short-term construction impacts compared to the No Action Alternative. Under the No Action Alternative, pipeline in the North Service Area is anticipated, but the Partially Connected System involves a higher volume of pipeline than what is reasonably anticipated to occur under the No Action Alternative.

SVCSD

In addition to the components described as art of the Basic System, the Partially Connected System would expand interconnectivity between SVCSD and Napa SD to serve the Sears Point Area along Lakeville Highway. Wastewater treatment and distribution would also be extended to the Southern Sonoma Valley service area via a new recycled pipeline network that runs along

Arnold Drive (State Routes 116 and 121). Lakeville Highway and Arnold Drive are almost entirely surrounded by agricultural land, open space, and undeveloped land. There are few to no residences with views of the roadways that would be affected by construction activities. Cornerstone Gardens is located along Arnold Drive, so there is a potential impact to visual access available to Cornerstone Gardens customers. The roadways do not experience a high volume of traffic, so temporary impacts to aesthetics would be less than significant.

The Partially Connected System pipelines will extend to the Carneros West area, east on Old Sonoma Road and Dealy Lane on existing roadways that are bordered entirely by vineyards. There are no visitor-serving facilities or residences with views that would be affected during pipeline construction, as the few existing residences are setback from the road. Residences along Congress Valley Road along NBWRP corridor are mostly screened from the road by vegetation. A new storage facility is proposed in the Carneros area. The precise location of the storage facility is undetermined, so proper placement would ensure there are no impacts to aesthetics.

Construction activities would occur adjacent to the di Rosa Preserve, which is recognized in the *Napa County General Plan* as a landmark. The pipeline corridor is not visible from most vantage points near the lake at the di Rosa Preserve.

In general, short-term temporary construction impacts associated with the proposed pipelines and recycled water facilities will temporarily impact aesthetics by altering scenic views. The impacts would be similar to those discussed above and implementation of **Mitigation Measure 3.14.1a** would reduce the impact to less-than-significant level.

Under the No Action Alternative, Alignment 1A described under the SVRWP is reasonably anticipated to occur, therefore some short-term construction impacts to aesthetics in the SVCSD would be the same. The Partially Connected System also requires additional pipeline, which represents an incremental increase in aesthetic impacts during the short-term construction period compared to the No Action Alternative.

Napa SD

In addition to the components described under the Basic System, the Partially Connected System includes extension of service to an expanded MST area and an expanded Carneros East area, which would require additional pipelines for conveyance. Construction of the recycled water pipelines would result in short-term impacts to scenic resources, similar to those discussed above.

Approximately two miles of additional pipeline would extend to the Carneros East area, south of Napa, perpendicular to State Route 29. The landscape primarily consists of agriculture. The pipelines would be constructed in Milliken Canyon, north of Hagen Avenue along Vichy and Atlas Peak Roads, which contain moderate to low density residential areas that have direct views of the road. The pipeline corridor is proposed adjacent to Silverado Golf Course, so views from the Country Club could be temporarily affected. However, these effects would be temporary during project construction and would not significantly impact the long-term visual character of the area. Surface restoration would involve replanting grasses, shrubs, and trees in unpaved areas outside of the roadways (see **Mitigation Measure 3.14.1a**).

Construction of the proposed storage reservoir in the MST area would result in short-term impacts to aesthetic resources. It is expected that the reservoir would be constructed on Napa State Hospital property, in the same location as an existing abandoned water reservoir. Therefore, while the recycled water reservoir would be larger than the existing abandoned reservoir, the site would be improved, which would be an aesthetic benefit to the area. If the reservoir was sited in a different location, and if it was located adjacent to the golf course or the southern end of Vichy Road, it would be visible. There are undeveloped areas along the MST corridor that would not induce impacts to visual resources. Depending on placement, it is reasonable to assume there may be short-term construction impacts. The impacts would be similar to those discussed above.

Operational reconfiguration of the existing WWTP storage ponds not would alter the existing appearance of the ponds, and the general visual character of the pond area would remain. Therefore, there would be no impact.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts the scenic vistas under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, and Napa SD

No additional construction is proposed in this service area, that would affect scenic vistas. No additional impact is expected.

SVCSD

SVCSD would extend service north of the Sonoma Valley Recycled Water Service Area to the Central Sonoma Service Area. The major increment that will be implemented under the Fully Connected System is the pipeline that would be constructed in the Sears Point area. Construction of the recycled water pipelines would result in short-term impacts to scenic resources as discussed above.

The pipeline extensions beyond that under the Partially Connected System would occur in areas that contain similar land uses as previously discussed, but extension of these pipelines represents an incremental increase in the impact to aesthetics. The areas are primarily vineyards and agricultural lands. State Route 12 is eligible to be designated as a scenic highway, and is traveled frequently by motorists. Views from the highway of the surrounding vineyards could be temporarily affected by construction activities. During construction impacts like dust, excavation,

drilling, and road closures may reduce pedestrian access, uproot street trees, displace landscaping and streetscaping, and damage sidewalk materials. However, these effects would be temporary during project construction and would not significantly impact the long-term visual character of the area. Surface restoration would involve repaving roadways and replanting grasses, shrubs, and trees in unpaved areas outside of the roadways (see **Mitigation Measure 3.14.1a**).

Implementation of the Fully Connected Alternative represents the maximum build-out of recycled water projects and therefore would have considerably greater short-term impacts to aesthetics during construction compared to the No Action Alternative.

Mitigation Measures

The appropriate Member Agency will implement the following measures:

> **Mitigation Measure 3.14.1a:** Following construction activities, disturbed areas shall be restored to baseline conditions, including repaving roadways, replanting trees, and/or reseeding with a native seed mix typical of the immediately surrounding area.
>
> **Mitigation Measure 3.14.1b:** Berms around constructed reservoirs shall be vegetated with native seed mixes to soften the visual effect of the reservoirs from adjacent roadways.
>
> **Mitigation Measure 3.14.1c:** Design elements shall be incorporated to enhance visual integration of the booster pump station and distribution pump station with their surroundings. Proposed facilities shall be painted low-glare earth-tone colors that blend with the surrounding terrain. Highly reflective building materials and/or finishes shall not be used in the designs for proposed facilities.

Impact Significance after Mitigation: Less than Significant.

Impact 3.14.2: Impact to views along scenic roadways. Implementation of NBWRP could affect views along eligible or designated Caltrans Scenic Highways, or locally-defined scenic routes. (Less than Significant with Mitigation)

Pipeline installation would occur predominantly within existing right-of-ways, however could potentially occur along a Caltrans-designated scenic highway, or a locally-defined scenic corridor identified in a local General Plan. Although pipeline construction activities would progress along the alignment and would affect a specific location for a short period of time, staging areas associated with these projects could be used for longer duration.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.14-1**).

Under future baseline (2020) conditions, scenic vistas within the region are anticipated to be similar to existing conditions and in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

No recycled water projects are anticipated in the LGVSD service area; therefore no impacts on scenic highways are expected.

Novato SD/NMWD

The *City of Novato General Plan* establishes Atherton Avenue as a locally-defined scenic route. The pipeline corridor would extend for less than a mile along Atherton Avenue, and would impact the scenic views experienced by roadway users. This impact would be less than significant with mitigation, as construction would last for a short duration and the roadway and vegetation would be reestablished.

SVCSD

Alignment 1A, proposed under the SVRWP, would include pipeline along Highway 116, between Arnold Drive and Highway 12, and along County designated scenic corridors on Arnold Drive, Highway 116 and Highway 12. As discussed in the SVRWP EIR (ESA, 2006) construction activities, after mitigation, would not detract from the visual quality of the areas. Further, the pipelines would be buried underground; therefore, there would be a less than significant impact to scenic highways.

There are no scenic highways in the vicinity of the proposed Napa Salt Marsh Restoration Pipeline or the Alternative Route; therefore, there is no impact to scenic highways associated with this component.

Napa SD

No recycled water projects are anticipated in the Napa SD service area, therefore no impacts to scenic highways are expected.

Phase 1 (Project level)

Compared to the CEQA Baseline Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to scenic roadways under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

There are no Caltrans designated scenic highways in the LGVSD service area; therefore, there would be no impact.

Novato SD/NMWD

In the Novato SD service area, there are no Caltrans designated scenic highways, however portions of U.S. Highway 101 and State Route 37 are eligible for designation. The City of Novato has also designated areas of Atherton Avenue and Novato Boulevard as locally-important scenic routes (see Table 3.14-1). Under Phase 1, the NBWRP would have no impact on the scenic areas of State Route 37 or Novato Boulevard. The proposed pipeline would cross the eligible portion of U.S. Highway 101 at Olive Avenue and at two places south of Rowland Boulevard. At these crossings, the project would not detract from the visual quality of the areas, and pipelines would be buried underground; therefore, the impact would be less than significant.

The pipeline would also traverse along Atherton Avenue, at the intersection of Atherton Avenue and Olive Street. Although U.S. Highway 101 and Atherton Avenue are not designated by Caltrans as scenic highways, they are established by the City of Novato as locally-defined scenic routes; therefore there would be an impact to scenic highways. Following construction, measures including roadway repaving and landscaping would restore the disturbed area, resulting in a less-than-significant temporary impact with mitigation (**Mitigation Measures 3.14.1a** and **3.14.1c**). The pipelines would be buried; therefore, there would be no long-term impacts to these scenic corridors.

Installation of the booster pump station adjacent to Atherton Avenue could permanently affect views experienced by roadway users. However, the architecture of the pump station housing would be designed to blend in with the surrounding environment, and landscaping around the structure and revegetation along the distribution connection would minimize the appearance of the constructed area. Implementation of **Mitigation Measure 3.14.1b** would reduce the effects of the booster pump station on aesthetic resources to a less-than-significant impact.

The pipeline proposed under the No Action Alternative is also proposed under Phase 1. Phase 1 represents an incremental increase in impacts to scenic highways because it also proposes a booster pump station, which would impact scenic highways.

SVCSD

NBWRP components would not directly affect Caltrans designated scenic highways, including Valley of the Moon Highway or portions of State Route 116, because project facilities do not cross or run adjacent to these roadways (see Table 3.14-2). Portions of the proposed pipeline could affect scenic resources adjacent to County-designated scenic routes. In general the level of impact is equivalent under both the No Action Alternative and Phase 1.

Napa SD

Under Phase 1, installation of the 17.5 miles of pipeline would occur predominantly along existing roadways. Napa County has designated a series of roadways as locally-defined scenic routes, as described above in Table 3.14-3. Pipeline corridors do not directly overlap these Scenic Highway areas, so there would be no impact to scenic highway resources.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to scenic roadways under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

There are no Caltrans-designated scenic highways in the LGVSD service area; therefore, there is no impact.

Novato SD/NMWD

Under the Basic System, pipelines are proposed along a portion of State Route 37, which is eligible for designation as a Caltrans Scenic Highway, and along small portions of Novato Boulevard. Views of open space and agricultural land are experienced by roadways users. These views would be temporarily disrupted during short-term construction activities. However, following construction, measures including roadway repaving and landscaping would restore the disturbed area, resulting in a less than significant temporary impact with mitigation (**Mitigation Measures 3.14.1a** and **3.14.1c**). The pipelines would be buried; therefore, there would be no long-term impacts to these scenic corridors.

Implementation of the Basic System would affect Atherton Avenue in addition to Novato Boulevard, therefore the impacts from the Basic System would be incremental as compared to Phase 1 and the No Action Alternative.

SVCSD

An extension of the pipeline corridor along Arnold Drive is proposed under the Basic System. Portions of State Route 121/ Arnold Drive are eligible for Caltrans Scenic Highway designation. The proposed pipeline would occur along Highway 116, between Arnold Drive and Highway 12, and along County-designated scenic corridors on Arnold Drive, Highway 116 and Highway 12. In the city of Sonoma, pipeline corridors would traverse along Broadway, through the intersection of Broadway/ Leveroni Road/ Napa Road. The Broadway intersection has been established by the City as a locally-defined gateway to the city. Impacts to views and disruption of streetscaping on Broadway would be temporary during the construction period. Following construction, measures including roadway repaving and landscaping would restore the disturbed area, resulting in a less than significant temporary impact with mitigation (**Mitigation Measures 3.14.1a** and **3.14.1c**). Due to the nature of the proposed pipelines, which would be buried underground, the project would not detract from the permanent visual quality of the scenic highways. Due to the nature of pipelines, these views would be temporarily disrupted during short-term construction activities. Following construction, measures including roadway repaving and landscaping would restore the disturbed area, resulting in a less than significant temporary impact with mitigation (**Mitigation Measures 3.14.1a** and **3.14.1c**). The pipelines would be buried; therefore, there would be no long-term impacts to these scenic corridors (see Impact 3.14.4).

Additional project components, including recycled water pipelines, are proposed under the Basic System, which would affect eligible scenic routes in Sonoma County; therefore, there is an incremental increase in adverse impacts to scenic highways in the SVCSD service area under the Basic System compared to the No Action Alternative.

Napa SD

Under the Basic System, the proposed pipeline corridor would not overlap or run adjacent to Caltrans designated Scenic Highway segments along State Routes 29 and 121 near Napa; therefore there is no impact to scenic highway resources. Installation of the pipeline would occur predominantly along existing roadways. The level of impact is the same as that discussed for the No Action Alternative.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to scenic roadways under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Novato South Service Area-Hamilton Field.

The pipeline route would cross under State Route 37, which is eligible for Caltrans Scenic Highway designation, near the onramp from U.S. Highway 101. The construction activities would most likely not be visible from the highway, and the project would not detract from the visual quality of the areas; therefore, views of open space from the roadway at this crossing point would not be affected. The pipelines would be buried, therefore, there are no long-term adverse impacts from facility operation to scenic highways. There would be an incremental increase in adverse impacts to scenic highways in the LGVSD service area under the Partially Connected System compared to the No Action Alternative.

Novato SD/NMWD

Under the Partially Connected System, pipelines would be installed along Novato Boulevard, which has been identified by the City of Novato as a locally-important scenic route. Impacts to views from this roadway would be temporarily affected during a short-term construction period. However following construction, Novato Boulevard would be repaved and landscaped to restore disturbed areas; therefore the impact would be less than significant with implementation of **Mitigation Measures 3.14.1a** and **3.14.1c**. The pipelines would be buried, therefore, there are no long-term adverse impacts from facility operation to scenic highways.

There would be an incremental increase in adverse impacts to scenic highways in the Novato SD service area under the Partially Connected System compared to the No Action Alternative.

SVCSD

Under the Partially Connected System, extended service to the Sears Point area would require additional pipeline along State Route 37, which is eligible for Caltrans scenic highway designation. A pipeline would also be extended approximately 6 miles south along State Route 121/Arnold Drive, which is also eligible for Caltrans Scenic Highway designation. Views of open space, agricultural land, and some wetland areas from these roadways would be temporarily disrupted during the short-term construction period. The impact would be similar to that discussed under Novato SD and would be less than significant with mitigation.

There would be an incremental increase in adverse impacts to scenic highways in the SVCSD service area under the Partially Connected System compared to the No Action Alternative.

Napa SD

Under the Partially Connected System, an additional 1.75 mile-pipeline would extend east from the Napa SD WWTP into the Carneros area. Views of open space, agricultural land, and some wetland areas are visible from these roadways. The project is not anticipated to detract from the visual quality of the areas, and pipelines would be buried underground; therefore, there is a less than significant impact to scenic highways.

There would be an incremental increase in adverse impacts to scenic highways in the SVCSD service area under the Partially Connected System compared to the No Action Alternative.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to scenic vistas under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

There are no additional project facilities proposed under the Fully Connected System, therefore, there are no impacts to scenic corridors. Similar to the Partially Connected System, there would be an incremental increase in adverse impacts to scenic highways in the LGVSD service area compared to the No Action Alternative.

Novato SD/NMWD

There are no additional project facilities proposed under the Fully Connected System that were not identified under the Partially Connected System. No additional impact is expected. Similar to the Partially Connected System, there would be an incremental increase in adverse impacts to scenic highways in the Novato SD service area compared to the No Action Alternative.

SVCSD

Under the Fully Connected System, an approximately 2.5-mile pipeline would connect the pipeline along Arnold Drive to the pipeline at Sears Point and would cross State Route 37. Views of open space and wetlands would be temporarily disrupted during the short-term construction period. The pipeline corridor would run adjacent to sections of State Route 12 and State Route 121 (Arnold Dive), where it is eligible for the scenic highway designation. The pipeline would traverse one mile north along Arnold Drive, through Eldridge to Madrone Road, and one mile along State Route 12 north of Agua Caliente. Similar to the impact discussed under the Partially Connected System, the impact would be less than significant with mitigation for the additional pipelines discussed.

Additional recycled water pipelines, are proposed under the Partially Alternative would affect eligible scenic routes in Sonoma County; therefore, there is an incremental increase in adverse impacts to scenic highways in the SVCSD service area under the Fully Connected System compared to the No Action Alternative.

Napa SD

There are no additional project facilities proposed under the Fully Connected System, therefore, there are no impacts to scenic corridors. Similar to the Partially Connected System, there would be an incremental increase in adverse impacts to scenic highways in the Napa SD service area compared to the No Action Alternative.

Mitigation Measures

The appropriate Member Agency will implement the following measures:

Mitigation Measure 3.14.1a
Mitigation Measure 3.14.1b

Impact Significance after Mitigation: Less than Significant.

Impact 3.14.3: Source of Light or Glare. NBWRP components could introduce new sources of light and glare on the project sites. (Less than Significant with Mitigation)

Exterior lighting would be installed around the constructed water storage reservoirs, distribution pump stations, storage tanks, and booster pump stations. Exterior lighting could adversely affect day and nighttime views by introducing a new source of light and glare. The lighting would be used for security purposes only and would be timed. If nighttime construction is required, nighttime lighting at construction sites would contribute to ambient light. Also, building materials for new facilities could be reflective, and contribute to additional glare from constructed facilities. Implementation of the identified mitigation measures would reduce potentially significant lighting and glare impacts to a less-than-significant level. There would be no long-term lighting installed for the pipelines, therefore is not discussed further.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact is expected. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.14-1**).

Under future baseline (2020) conditions, aesthetics within the region are anticipated to be similar to existing conditions in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

There could be lighting installed associated with some of the storage and pump station facilities as part of the recycled water projects that would be implemented under the No Action Alternative. Increased lighting and glare could affect visual resources.

LGVSD/NMWD

No recycled water projects are anticipated in the LGVSD service area, therefore no impacts from light and glare are expected.

Novato SD/NMWD, SVCSD

There would be no exterior lighting associated with the proposed pump stations and storage reservoirs, therefore no impact is expected.

Napa SD

No recycled water projects are anticipated in the Napa SD service area, therefore no impacts from light and glare are expected.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts from new sources of light and glare under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, impacts from long term security lighting for the proposed pump station could be significant. Implementation of **Mitigation Measures 3.14.3a and 3.13.3b** would reduce the impact to less than significant.

Novato SD/NMWD

Expansion of tertiary treatment capacity at the Novato SD WWTP would not result in impacts from lighting and glare to aesthetics because the WWTP currently uses emergency and operational lighting for existing facilities. Modification of the existing plant may involve additional lights, but the overall effect from lighting would remain the same.

Installation of the proposed booster pump station near the intersection of Atherton Avenue and Olive Avenue would potentially require nighttime construction lighting and exterior lighting, which could result in long-term impacts to aesthetic and scenic resources. The proposed site is currently undeveloped, but it is adjacent to existing residences. Exterior lighting for the booster pump station could be visible from nearby residences as well as from receptors on the nearby ridge areas. Implementing timed-lighting and orienting lights downward would reduce significant lighting impacts to a less than significant level (**Mitigation Measures 3.14.1c, 3.14.3a, 3.14.3b**). Therefore, the exterior lighting at the booster pump station would not substantially increase ambient light in the action area.

SVCSD

Lighting could be installed for the proposed booster pump station for the portion of Sonoma Valley Recycled Water Project under the No Action Alternative. Implementation of **Mitigation Measures 3.14.3a** and **3.14.3b** would reduce potential construction-related lighting impacts to a less-than-significant level.

The new pump station proposed would be located at the existing SVCSD WWTP. Emergency and operational lighting, and building materials would be consistent with existing facilities, therefore impacts from lighting and glare would be less than significant.

Napa SD

Four new booster pump stations would be constructed on sites along North 3rd Avenue, East 3rd Avenue, and Coombsville Road (Wild Horse Valley Road), and Imola Road. The sites are surrounded mainly by viticulture, and several low density detached single-family homes. Views from the residences would potentially be affected by the additional lighting. With implementation of mitigation measures addressing design, landscape screens, and lighting features (**Mitigation Measures 3.14.1c, 3.14.3b, 3.14.3c**), the impact would be less-than-significant. The proposed booster pump site along Imola Drive is situated on a flat, undeveloped parcel that is surrounded by undeveloped parcels, a commercial center, and bound by the roadway. There are several residences set back from Imola Drive on the side opposite of the proposed site. Based on the surrounding land uses, the additional security and operational lighting would not impact views in this area.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts from new sources of light and glare under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

There would be no additional impacts from lighting and glare to aesthetics other than the impacts associated with the implementation of Phase 1.

Novato SD/NMWD

WWTP improvements and utilization of existing storage tanks would rely on existing light at the facilities, and would not increase lighting and glare; therefore the Basic System would not adversely affect visual resources.

Reoperation of existing storage tanks may require installation of new security or emergency lighting. The Main Gate Road/ Hangar Avenue Tank is situated on top of a hill overlooking open space and state access land to the north, and a residential development to the south, so lighting and glare effects would not be easily visible. Similarly, the existing storage tank near Olive Drive is situated in a shallow valley between two low hills to the north of Zandra Place. It is mostly surrounded by trees, and there is only one residence that would potentially be affected by additional emergency lighting at this facility. Implementation of **Mitigation Measures 3.14.3a and 3.14.3b** would reduce the impact to less-than-significant level.

SVCSD

There would be no additional impacts from lighting and glare to aesthetics other than the impacts associated with the implementation of Phase 1.

Napa SD

There are no anticipated impacts on aesthetics from lighting and glare other than those previously discussed under Phase 1, as additional components proposed under the Basic System will be located at the existing WWTP. Therefore, the Basic System represents an incremental increase in adverse impacts to ambient light compared to the No Action Alternative.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts from new sources of light and glare under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

Reoperation of existing storage tanks under the Partially Connected System may require installation of new security or emergency lighting. The Peacock Gap Storage Tank is situated in open space at

the foot of a hill between Biscayne Road and San Pedro Road. Approximately three residences along Partridge Drive are in the same viewshed, but lighting and glare effects would not be easily visible. Effects from lighting and glare on scenic views would be less than significant.

There would be no anticipated impacts to ambient light under the No Action Alternative, therefore exterior lighting as part of the Partially Connected System would have a greater impact than the No Action Alternative in the LGVSD service area.

Novato SD/NMWD

Impacts from reoperation of an existing storage tank under the Partially Connected System would be similar to that discussed under LGVSD. Implementation of **Mitigation Measure 3.14.3b** would ensure a less-than-significant impact.

In general, the level of impact to ambient light is similar under the Basic System. If nighttime construction is required for NBWRP construction, there will be an incremental increase in ambient light compared to the No Action Alternative.

SVCSD

The impacts would be similar to those discussed under the Basic System and would be incrementally greater than those discussed under the No Action Alternative.

Napa SD

Under the Partially Connected System, emergency and security lighting may be used during operation of a new storage reservoir would reduce dark-sky effects and potentially affect residential views. Similarly, there is potential for the structure itself to be constructed of bright or reflective material. Implementing structural design features, screening and lighting mitigation (**Mitigation Measures 3.14.3b** and **3.14.1c**) would reduce the impacts from lighting and glare to a less than significant level.

The Partially Connected System represents an incremental increase in ambient light compared to the No Action Alternative.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts from new sources of light and glare under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, and Napa SD

No additional construction is proposed under the Fully Connected Alternative. Therefore, there will be no additional effect from construction lighting or emergency lighting on ambient light.

Implementation of the Fully Connected Alternative, which includes components under the Partially Connected System, would represent an incremental increase in impacts to ambient light, compared to the No Action Alternative.

SVCSD

Under the Fully Connected System, there would be no new sources of lighting installed for any new project facilities, therefore no impact is expected. The Fully Connected System, which includes components under the Partially Connected System and additional pipeline, represents an incremental increase in ambient light.

Mitigation Measures

The appropriate Member Agency will implement the following measures:

> **Mitigation Measure 3.14.1c**
>
> **Mitigation Measure 3.14.3a:** The exterior lighting installed around the operational and capacity storage reservoirs, distribution pump station, storage tanks, and booster pump station shall be of a minimum standard required to ensure safe visibility. Lighting also shall be shielded and directed downward to minimize impacts of light and glare.
>
> **Measure 3.14.3b:** All exterior lighting is directed downward and oriented to insure that limited light source is directly visible from neighboring residential areas. If necessary, landscaping would be provided around proposed facilities. The vegetation would be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas.

Impact Significance after Mitigation: Less than Significant.

Impact 3.14.4: Long-term impact to aesthetic character. Development of the proposed facilities, particularly pump stations and storage reservoirs, would permanently alter the aesthetic character of the action area. (Less than Significant with Mitigation)

Construction of facilities on graded or undeveloped areas would change the landscape by introducing a new structure above the grade or the skyline. Facilities that would be constructed above-grade include pump stations and new storage reservoirs. In some cases, the pump stations and reservoirs would be located near sensitive receptors or roadways, however views may be buffered by street trees, minimized by property setbacks, or limited by topography. In areas where the structures would significantly alter views, mitigation would be required. Adverse effects specific to certain proposed components are described in the subsections below.

No Project Alternative

No project components would be implemented under the No Project Alternative. No impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.14-1, No Action**).

Under future baseline (2020) conditions, aesthetic character of the region is anticipated to be similar to existing conditions in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

Under the No Action Alternative, permanent changes to landscape units could occur, therefore affecting the long-term visual character of the action area. Projects that are reasonably anticipated to occur under the No Action Alternative include increased distribution facilities in the Novato SD service area, SVRWP Alignment 1A pipeline and Napa Salt Marsh pipeline in the SVCSD service area.

LGVSD/ NMWD

No recycled water projects are anticipated in the LGVSD service area, therefore no permanent impacts to visual character would occur.

Novato SD/ NMWD

The No Action Alternative would not involve any long term aboveground features that would permanently alter the aesthetic character of the area. No impact would occur.

SVCSD

The No Action Alternative would include construction of a pump station at the SVCSD WWTP, which is an existing developed property. The pump station would be installed within the footprint of the existing WWTP, and would be generally consistent with the existing landscape. The impact would be less than significant.

The SVWRP Alignment 1A pipeline and the SVCSD Napa Salt Pond Pipeline would not permanently affect visual resources because pipelines would be buried underground, and disturbed areas would be restored after construction.

Napa SD

No recycled water projects are anticipated in the Napa SD service area, therefore no permanent impacts to visual character would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The long-term impacts to aesthetics under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

There are no storage facilities or other structures proposed under Phase 1 that would permanently alter the visual character of the area. No impact is expected. The facilities proposed under Phase 1 would have the same level of impact as compared to the No Action Alternative.

Novato SD/NMWD

North Novato Service Area. Modification of the tertiary treatment capacity and construction of a one new booster pump station would not alter the general existing visual character of the WWTP. An additional pump station is proposed near the intersection of Atherton Avenue and Olive Avenue on an undeveloped parcel bordered by H Lane and single-family residences. Installation of the proposed booster pump station could result in long-term impacts to aesthetic and scenic resources by introducing a new structure to the landscape. The booster pump station would extend up to 15 to 20 feet above grade. The views of the pump station from residences on the east and west sides of H lane would be buffered by trees. It would most likely not be visible to vehicular traffic from Atherton Avenue. Implementation of **Mitigation Measures 3.14.4a** and **3.13.4b** will mitigate impacts to the permanent visual character of the area to a less than significant level.

Central Novato Service Area. Under Phase 1, construction of a booster pump station would have an impact to aesthetics. The level of impact to the visual character of the area would be similar to the impact discussed above, and would be incrementally greater than the level of impact discussed above No Action Alternative.

SVCSD

Additional storage and an additional pumping station are proposed at the existing WWTP. The WWTP is visible from 8th Street and Schellville Road. Land surrounding the WWTP is flat open and undeveloped land, vineyard, and commercial land. While the pond would be in the ground and only visible from proximate vantage points, the pump station would be above grade,

introducing a new, contrasting object to the landscape. Construction of another storage pond and pumping station would alter the appearance of the WWTP, however would be generally consistent with the existing visual character of the site. Addition of the pond and pump station would not significantly impact the existing visual resources or the permanent visual character of the action area. Furthermore, incorporation of screening and vegetation measures would continue to reduce potential impacts to a less than significant level.

Thus, Phase 1 includes Alignment 1A, and additional structures, which would have a permanent impact on the long-term visual character of the area; therefore, long-term effects on the permanent character of the landscape would be incrementally greater under Phase 1 compared to the No Action Alternative.

Napa SD

Phase 1 requires the installation of four new booster pump stations on North 3rd Avenue, East 3rd Avenue, Coombsville Road (Wild Horse Valley Road), and Imola Avenue. The areas along North 3rd Avenue, East 3rd Avenue, Coombsville Road/ Wild Horse Valley Road contain primarily low density rural residential and agricultural land uses.

The precise location of the North 3rd Street Pump Station is undefined, but in general, the area is characterized by vineyard and low density residential land uses, and a minimum number of sensitive receptors are present. North 3rd Avenue is bordered to the west by street trees, which would obstruct views of the pump station by nearby residents. The physical structure would affect the aesthetic character of the adjacent vineyard. Potential sensitive residential receptors along East 3rd Avenue are set back at a considerable distance from the road and are surrounded by trees and open space. The precise location of this pump station is undetermined, but in general, it would be built on relatively flat, open terrain in a low density residential and agricultural neighborhood. There are approximately five residential or visitor-serving buildings in the adjacent area. Coombsville Road/ Wild Horse Valley Road is bordered by street trees, and the pump station would be setback from the road, therefore the pump station would not be readily visible from the road. There are two agricultural and community buildings adjacent to the undeveloped parcel where the pump station may be located that would be affected by the introduction of a new public utility structure. A new booster pump station situated in the flat, undeveloped area bordering Imola Avenue would be visible from Imola Avenue, Penny Lane, and approximately four sensitive residential receptors. It would also be visible from the parking lot connected to the commercial center on Walnut Court, however would coincide with the existing visual character of this commercial structure. Since the NBWRP would introduce new above-grade structures that will alter the physical character and scenic views of the area, there would be a significant impact to visual resources. Implementation of **Mitigation Measures 3.14.4a** and **3.14.4b** would minimize the effects of the facilities on the surrounding viewshed and reduce the contrast between visual resources to a less than significant level.

The impact to the visual character of the area is incrementally greater under Phase 1 compared to the No Action Alternative because three additional pump stations are proposed.

Alternative 1: Basic System

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The long-term impacts to aesthetics under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

There would be no additional permanent impacts to the visual character of the LGVSD service area under the Basic System as compared to Phase 1.

Novato SD/NMWD

The Phase 1 analysis discussed the potential permanent impacts to the visual character of the Novato SD area. Under the Basic System, there are no additional impacts to visual resources that were not discussed in the Phase 1 analysis, because the Basic System addition consists of modification and utilization of existing facilities.

Improvements at the WWTP site would slightly alter the existing appearance of the WWTP, but the general visual character of the plant would remain. There would be no long-term impacts to aesthetic resources due to the continued operation of the existing WWTP because the WWTP is an existing physical feature.

Utilization of existing storage tanks would not induce long-term impacts to visual resources because they are existing units of the landscape.

Re-operation of the existing storage tanks would not require new construction. The activities required to refurbish the storage tanks would not disturb the character of the hillside area, which is surrounded by open space and parkland. Therefore, permanent impacts to the visual character of the action area would be less than significant.

The Basic System would include the booster pump previously discussed in Phase 1; therefore, the level of impact to the visual character of the area would be incrementally greater under the Basic Alternative than the level of impact anticipated under the No Action Alternative.

SVCSD

There would be no additional permanent impacts to the visual character of the SVCSD service area under the Basic Alternative compared to Phase 1. The facilities, including Alignment 1 and additional pipeline and structures, are anticipated to have a permanent impact on the long-term visual character of the area; therefore, long-term effects on the permanent character of the landscape would be similar to those under the No Action Alternative.

Napa SD

Improvements at the WWTP site would slightly alter the existing appearance of the WWTP, but the general visual character of the area would remain. Therefore, there would be no permanent impacts to the visual character of the action area.

Operational reconfiguration of the existing storage WWTP ponds would not alter the existing appearance of the ponds, and the general visual character of the pond area would remain. Therefore, there would be no impact.

The permanent impact to aesthetics would be incrementally greater under the Basic System, which includes Phase 1, as compared to the No Action Alternative.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The long-term aesthetics impacts under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

The Partially Connected System would involve use of additional conveyance capacity in the existing MMWD recycled water distribution system, and rehabilitation of an existing water reservoir near Peacock Gap Golf Course and would not result in permanent impacts to visual resources. The re-operation of existing water reservoirs would not introduce any new structures to the landscape.

The Partially Connected System, which includes components proposed under the Basic System, and the No Action Alternative would have the same level of impact long-term character of visual resources.

Novato SD/NMWD

The components proposed under the Partially Connected System will have no additional impacts to the permanent visual character of the area that were not previously discussed as part of the Basic System. Utilization of existing facilities would not introduce new structures to the landscape.

The level of impact to the visual character of the area would be incrementally greater under the Partially Connected System than the level of impact anticipated under the No Action Alternative based on incremental effects discussed under Phase 1 and the Basic Alternative.

SVCSD

In addition to the permanent impacts to the visual character of the action area discussed under the Basic System, components of the Partially Connected System could induce incremental impacts to visual resources. Extension of service to the Southern Sonoma Valley service area and Sear's Point area would a new recycled water storage pond near SVCSD WWTP and in the Carneros West area.

The SVCSD WWTP is an existing public utility that is surrounded primarily by viticultural land uses and some undeveloped parcels. The precise location for the storage pond is undetermined, but is will likely be located adjacent to the WWTP on flat, undeveloped land. The pond would be delineated by berms which would alter the existing view of the immediate areas. In general, the pond would be consistent with existing views associated with the WWTP, further implementation of **Mitigation Measures 3.14.4a** and **3.14.4b** would minimize the contrast between the berms and surrounding fields, and reduce the permanent effect on the visual character of the area to a less than significant level.

The long-term effects from the Partially Connected System on the permanent character of the landscape would be incrementally greater under the Basic System, as compared to the No Action Alternative.

Napa SD

In addition to the components described under the Basic System, the Partially Connected System would include service to expanded MST, Napa, and Carneros East areas, construction of a new storage reservoir, and reconfiguration of existing WWTP ponds. The new storage reservoir is proposed within the MST area, which contains primarily agricultural and partially residential land uses. Since the precise location of the storage reservoir is undetermined, it is reasonable to assume that since the storage reservoir would be an above-grade facility and could affect the visual landscape. Implementation of **Mitigation Measures 3.14.4a** and **3.14.4b** would reduce the impact to less-than-significant levels.

The existing WWTP ponds would be reconfigured to provide recycled water storage. Operational reconfiguration of the ponds would not change the appearance of the immediate area, and would be consistent with the existing visual characteristic of the WWTP; therefore there would be no impact to the visual character.

There would be no long-term impacts to aesthetic resources due to operation of the recycled water pipelines. All pipelines would be buried except for pipelines suspended beneath bridge crossings. Pipelines would not impair or obstruct any scenic resources.

In general, permanent impacts to the aesthetic character of the SVCSD service area under the Partially Connected System, which builds on the Basic System, are less than significant after mitigation. Implementation of the Partially Connected Alternative represents and incremental increase in permanent impacts to the visual character of the area compared to the No Action Alternative.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The long-term aesthetics impacts under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for Partially Connected System above in addition to the following impacts. There are no additional proposed aboveground structures, such as storage tanks or pump stations proposed under the Fully Connected Alternative that have not been discussed in the Partially Connected System analysis.

Since the Fully Connected Alternative includes the components proposed under Phase 1, the Basic Alternative, and the Partially Connected Alternative, the Fully Connected System would have an incrementally greater impact to the permanent visual character of the area compared to the No Action Alternative, even though they contain some similar elements.

Mitigation Measures

The appropriate Member Agency will implement the following measures:

> **Mitigation Measure 3.14.4a:** After construction of any facility that is above grade and visible to sensitive receptors, visual screening and vegetation measures will be implemented to reduce impacts to scenic views. Trees or other suitable vegetation along the fenceline of the facility should be incorporated to reduce the industrial appearance of the structures. Similarly, berms for new storage ponds or pond reconfiguration will be re-vegetated to reduce the barren appearance of the berms.
>
> **Mitigation Measure 3.14.4b:** Dark colored, non-reflective building materials should be used for project components that cause potentially significant impact from glare to visual resources.
>
> **Impact Significance after Mitigation**: Less than Significant

3.14.4 Impact Summary by Service Area

Table 3.14-4 provides a summary of potential aesthetic impacts associated with implementation of the NBWRP.

TABLE 3.14-4
POTENTIAL IMPACTS AND SIGNIFICANCE – AESTHETICS

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
Impact 3.14.1: Temporary impact to scenic vistas.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	LSM
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.14.2: Impact to Scenic Corridors.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	NI	LSM	LSM	NI
Alternative 1: Basic System	NI	LSM	LSM	NI
Alternative 2: Partially Connected System	LTS	LSM	LSM	LTS
Alternative 3: Fully Connected System	LTS	LSM	LSM	LTS
Impact 3.14.3: Impact from new sources of light.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	LSM
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.14.4: Permanent impact to visual character.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LTS	LTS	LSM
Phase 1	NI	LSM	LSM	LSM
Alternative 1: Basic System	NI	LSM	LSM	LSM
Alternative 2: Partially Connected System	NI	LSM	LSM	LSM
Alternative 3: Fully Connected System	LTS	LSM	LSM	LSM

NI = No Impact
LTS = Less than Significant impact, no mitigation required
LSM = Less than Significant with Mitigation

3.14.5 References

California Department of Transportation (Caltrans), California Street and Highway Code 263.

California Department of Transportation (Caltrans), *California Scenic Highway Mapping System*, Sonoma County, Napa County, Marin County, 2008, http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm, Accessed March 23, 2009.

City of Napa, Planning Department, *City of Napa General Plan, Land Use Element*, Adopted 1 December 1998, amended 1 January 2007.

City of Novato, Community Development Department, *City of Novato General Plan, Community Identity Element*, adopted 8 March 1996, revised 25 March 2003 by Resolution No. 33-03.

City of San Rafael, Community Development Department, *2020 General Plan, Community Development Element and Open Space Element*, 2004.

City of Sonoma, *City of Sonoma General Plan: 2020*, October 2006.

Sonoma County, Permit and Resource Management Department, 2008. Sonoma County General Plan 2020, adopted September 23, 2008.

Marin County Community Development Agency, *Marin Countywide Plan (General Plan), Community Design Element*, 6 November 2007.

Napa County, Department of Conservation, Development, and Planning, *Napa County General Plan*, June 4, 2008.

3.15 Environmental Justice

This section identifies minority and low-income populations that exist within the North Bay Water Recycling Program (NBWRP) area and evaluates whether the potential environmental impacts of each alternative would be disproportionately high and adverse on minority and low-income populations. The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

3.15.1 Affected Environment/Setting

LGVSD and Novato SD

Table 3.15-1 lists the demographics of the cities of Novato and San Rafael and Marin County from the 2000 U.S. Census. In 2000, over 75 percent of the population in Novato, San Rafael, and the County were white, approximately 2 to 3 percent were black, and about 5 percent were Asian. About 23 percent of San Rafael's population was Hispanic or Latino, which was more than double the County's percentage population of Hispanic or Latino. Novato's Hispanic or Latino population was approximately 13 percent, similar to that of the County.

TABLE 3.15-1
DEMOGRAPHICS: CITIES OF NOVATO AND SAN RAFAEL AND MARIN COUNTY

	Novato		San Rafael		Marin County	
	Number	Percent of Total Population	Number	Percent of Total Population	Number	Percent of Total Population
Total Population	47,630	--	53,525	--	247,289	--
Race						
White	39,414	82.8	42,472	75.8	207,800	84.0
Black or African American	948	2.0	1,257	2.2	7,142	2.9
American Indian or Alaska Native	246	0.5	312	0.6	1,061	0.4
Asian	2,479	5.2	3,133	5.6	11,203	4.5
Native Hawaiian or other Pacific Islander	82	0.2	304	0.5	388	0.2
Some other Race	2,587	5.4	6,256	11.2	11,116	4.5
Two or more Races	1,874	3.9	2,538	4.5	8,579	3.5
Hispanic or Latino (of any race)						
Hispanic or Latino	6,229	13.1	13,070	23.3	27,351	11.1
Not Hispanic or Latino	41,401	86.9	42,993	76.7	219,938	88.9

SOURCE: U.S. Census Bureau, 2000.

Table 3.15-2 presents household income, per capita income, and poverty status for Novato, San Rafael, and Marin County in 1999. Median household income was $63,453 in Novato, $60,994 in San Rafael, and $71,306 in Marin County. Between 3 and 6 percent of families and 5 and 10 percent of individuals were below the poverty level in the three areas. In 2000, the weighted average federal poverty threshold was $8,794 for one person and $13,738 for a three-person family.

TABLE 3.15-2
INCOME AND POVERTY STATUS: CITIES OF NOVATO AND SAN RAFAEL AND MARIN COUNTY

	Novato		San Rafael		Marin County	
Income and Poverty Status (1999)	**Number**	**Percent of Total Population**	**Number**	**Percent of Total Population**	**Number**	**Percent of Total Population**
Households	18,554	--	22,378	--	100,736	--
Less than $14,999	1,310	7.0	2,256	10.1	7,811	7.7
$15,000 to $24,999	1,373	7.4	1,899	8.5	6,854	6.8
$25,000 to $34,999	1,540	8.3	2,008	9.0	7,399	7.3
$35,000 to $49,999	2,618	14.1	3,024	13.5	12,151	12.1
$50,000 to $74,999	4,064	21.9	4,005	17.9	18,240	18.1
$75,000 to $99,999	2,632	14.2	2,949	13.2	12,947	12.9
$100,000 to $149,999	2,940	15.8	3,157	14.1	16,128	16.0
Greater than $150,000	2,077	11.2	3,080	13.7	19,206	19.1
Median Household Income ($)	63,453	--	60,994	--	71,306	--
Per Capita Income ($)	32,402	--	35,762	--	44,962	--
Poverty Status – Families	--	3.1	--	5.6	--	3.7
Poverty Status – Individuals	--	5.6	--	10.2	--	6.6

SOURCE: U.S. Census Bureau, 2000

SVCSD

Table 3.15-3 lists demographics of the City of Sonoma and Sonoma County from the 2000 Census. About 94 percent of the population in the City and 82 percent of the County was white. About 3 percent in the City and 6 percent in the County was black, American Indian, Asian, or Pacific Islander. About 7 percent of the population in the City was Hispanic or Latino, which was much lower than the County.

Table 3.15-4 presents household income, per capita income, and poverty status for the City and County in 1999. Median household income was $50,505 in the City and $53,076 in the County. Approximately 2 percent of families and 4 percent of individuals were below the poverty level in the City, which was less than the total County poverty status.

Napa SD

Table 3.15-5 lists demographics of the City of Napa and Napa County from the 2000 Census. About 80 percent of the population in both the City and County was white. About 3 percent in the City and 5 percent in the County was black, American Indian, Asian, or Pacific Islander. About 27 percent of the population in the City was Hispanic or Latino, which was generally similar to that of the County.

Table 3.15-6 presents household income, per Capita income, and poverty status for the City and County in 1999. Median household income was $49,154 in the City and $51,738 in the County. Approximately 6 percent of families and 9 percent of individuals in the City were below the poverty level, which was generally similar to total County poverty status.

TABLE 3.15-3
DEMOGRAPHICS: CITY OF SONOMA AND SONOMA COUNTY

	City of Sonoma		Sonoma County	
	Number	**Percent of Total Population**	**Number**	**Percent of Total Population**
Total Population	9,128	--	458,614	--
Race				
White	8,562	93.8	374,209	81.6
Black or African American	33	0.4	6,522	1.4
American Indian or Alaska Native	31	0.3	5,389	1.2
Asian	155	1.7	14,098	3.1
Native Hawaiian or other Pacific Islander	5	0.1	934	0.2
Some other Race	147	1.6	38,717	8.4
Two or more Races	195	2.1	18,745	4.1
Hispanic or Latino (of any race)				
Hispanic or Latino	625	6.8	79,511	17.3
Not Hispanic or Latino	8,503	93.2	379,103	82.7

SOURCE: U.S. Census Bureau, 2000

TABLE 3.15-4
INCOME AND POVERTY STATUS: CITY OF SONOMA AND SONOMA COUNTY

	Sonoma		Sonoma County	
Income and Poverty Status (1999)	**Number**	**Percent of Total Population**	**Number**	**Percent of Total Population**
Households	4,276	--	172,690	--
Less than $14,999	570	13.3	17,775	10.3
$15,000 to $24,999	445	10.4	16,423	9.5
$25,000 to $34,999	510	11.9	18,620	10.8
$35,000 to $49,999	584	13.6	27,222	15.8
$50,000 to $74,999	854	20.0	38,103	22.1
$75,000 to $99,999	522	12.2	23,321	13.5
$100,000 to $149,999	479	11.2	20,364	11.8
Greater than $150,000	315	7.4	10,862	6.3
Median Household Income ($)	50,505	--	53,076	--
Per Capita Income ($)	32,387	--	25,724	--
Poverty Status – Families	--	2.0	--	4.7
Poverty Status – Individuals	--	3.7	--	8.1

SOURCE: U.S. Census Bureau, 2000

TABLE 3.15-5
DEMOGRAPHICS: CITY OF NAPA AND NAPA COUNTY

	City of Napa		Napa County	
	Number	Percent of Total Population	Number	Percent of Total Population
Total Population	72,585	--	124,279	--
Race				
White	58,302	80.3	99,396	80.0
Black or African American	381	0.5	1,645	1.3
American Indian or Alaska Native	657	0.9	1,045	0.8
Asian	1,241	1.7	3,694	3.0
Native Hawaiian or other Pacific Islander	117	0.2	289	0.2
Some other Race	9,181	12.6	13,604	10.9
Two or more Races	2,706	3.7	4,606	3.7
Hispanic or Latino (of any race)				
Hispanic or Latino	19,475	26.8	29,416	23.7
Not Hispanic or Latino	53,110	73.2	94,863	76.3

SOURCE: U.S. Census Bureau, 2000

TABLE 3.15-6
INCOME AND POVERTY STATUS: CITY OF NAPA AND NAPA COUNTY

	City of Napa		Napa County	
Income and Poverty Status (1999)	Number	Percent of Total Population	Number	Percent of Total Population
Households	27,032	--	45,395	--
Less than $14,999	2,650	9.8	4,397	9.7
$15,000 to $24,999	3,117	11.5	4,825	10.6
$25,000 to $34,999	3,395	12.6	5,247	11.6
$35,000 to $49,999	4,583	17.0	7,331	16.1
$50,000 to $74,999	5,557	20.6	9,147	20.1
$75,000 to $99,999	3,498	12.9	6,022	13.3
$100,000 to $149,999	2,760	10.2	5,062	11.2
Greater than $150,000	1,472	5.4	3,364	7.5
Median Household Income ($)	49,154	--	51,738	--
Per Capita Income ($)	23,642	--	26,395	--
Poverty Status – Families	--	6.1	--	5.6
Poverty Status – Individuals	--	8.9	--	8.3

SOURCE: U.S. Census Bureau, 2000

3.15.2 Regulatory Framework

The federal, state, and local policies and regulations associated with impacts to environmental justice within the affected jurisdictions are presented below.

Federal

The 1994 Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires all federal agencies to conduct "programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin." Section 1-101 of the Order requires federal agencies to identify and address "disproportionately high and adverse human health or environmental effects" of programs on minority and low-income populations (U.S. Environmental Protection Agency [USEPA], 1994).

The USEPA released the 1996 Environmental Justice Implementation Plan that provides a framework for developing specific plans and guidance for implementing Order 12898. The plan establishes a goal for the USEPA to review NEPA documents for effects to environmental justice and help establish environmental justice impact analysis methods (USEPA, 1996). In 1998, USEPA published Guidance for Incorporating Environmental Justice Concerns in the USEPA's National Environmental Policy Act Compliance Analysis. This guidance presents procedures to evaluate disproportionately high and adverse effects on minority and low-income populations (USEPA, 1998).

State

California Government Code Section 65040.12(e) defines environmental justice as the "fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." Section 65040.12(a) designates the Governor's Office of Planning and Research (OPR) as the coordinating agency in State government for environmental justice programs and directs the agency to coordinate with Federal agencies regarding environmental justice information. In 2001, Assembly Bill 1553 was signed into law requiring OPR to incorporate environmental justice considerations in General Plan Guidelines. AB 1553 specifies that local governments should address planning for equitable distribution of new public facilities and services, industrial facilities and uses, new schools and residential dwellings, and expanding opportunities for transit-oriented development.

In 2003, OPR published *Environmental Justice in California State Government*. The policy report provides a brief history on environmental justice, reports on OPR's efforts, outlines environmental justice findings, goals, and policies for future environmental justice efforts within State government. OPR has also incorporated environmental justice into the 2003 General Plan Guidelines and is updating them for the 2007 edition (OPR 2003, OPR 2008). Many California

State agencies have made efforts to incorporate environmental justice into programs and activities, including, but not limited to, California Department of Water Resources, California Air Resources Board, California Bay Delta Authority, California Environmental Protection Agency, and the California Resource Agency. However, many agencies do not yet have guidance for incorporating environmental justice impact assessment into CEQA.

Local

The Association of Bay Area Governments (ABAG), a consortium of nine Bay Area counties, which includes Marin, Sonoma, and Napa Counties, addressed social justice and equity in its Smart Growth Strategy and developed a policy to improve conditions in disadvantaged neighborhoods, ensure environmental justice, and increase access to jobs, housing, and public services for all residents in the region (ABAG, 2004).

The 2007 *Marin Countywide Plan* addresses environmental justice issues. The plan identifies general environmental inequities in Marin based on both race and income level relating to access and exposure to healthy food, air, and soils and sets a goal to ensure that all persons in Marin live in a safe and healthy environment (County of Marin, 2007).

The General Plans for Napa and Sonoma Counties do not discuss environmental justice issues.

3.15.3 Environmental Consequences/ Impacts

This section describes environmental justice effects relative to both minority and low-income populations in the action area. According to the Federal Council of Environmental Quality (CEQ) guidelines for environmental justice analyses, minority population[1] should be identified where the minority population of the affected area exceeds 50 percent or the minority population percentage of the affected area is meaningfully greater than the majority population percentage of the general population (CEQ, 1997).

The CEQ guidelines do not specifically define low-income populations, but some agencies have developed thresholds for environmental justice impacts analysis. This analysis uses California Department of Water Resources (DWR) guidelines to evaluate impacts. DWR incorporated environmental justice into the Integrated Regional Water Management planning guidelines to receive state funding. The Proposition 50 guidelines required applicants to involve disadvantaged communities in the planning process and identify and address environmental justice needs and issues within the region. California Water Code § 79505.5(a) defines disadvantaged communities as those communities with an annual median household income less than 80 percent of the statewide annual median household income, which was $47,493 in the 2000 Census (U.S. Census, Bureau 2000). The 80 percent threshold would be a median household income of $37,944, which is rounded to $38,000 for this analysis.

[1] Minority is defined as individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

Information on racial composition, minority populations, and median household income was obtained from 2000 U.S. Census data to identify environmental justice populations. The analysis assumes that construction and operation of the project could affect populations within a one-half mile radius of the project components. If minority or low-income communities are predominant in the area, the analysis identifies potentially significant impacts to air quality, traffic, and noise from project construction and operation that may disproportionately affect minority or low-income communities. If potentially significant impacts to noise, air quality and traffic were to occur, there could be disproportionate environmental justice impacts and mitigation would be required. The analysis also discusses potential environmental justice impacts from increased water and sewer fees and changes in farm worker employment.

Identification of Disproportionately High and Adverse Environmental Effects

The NBWRP would result in a significant environmental justice impact if it would result in one or more of the following:

- An impact to the natural or physical environment that significantly and disproportionately adversely affects the identified minority or low-income population. Such effects may include ecological, cultural, human health, economic, or social impacts on the identified communities when those impacts are interrelated with impacts to the natural or physical environment.
- A significant environmental effect that would result in an adverse impact on the identified population that appreciably exceeds or is likely to appreciably exceed that impact on the general population or other appropriate comparison group.

Environmental Consequences/Impact Analysis

Impact 3.15.1: Project construction could result in air quality, noise, and/or other environmental impacts that could disproportionately affect nearby minority communities. (No Impact)

The NBWRP would include construction for pipeline installation, pump stations, storage reservoirs, and treatment plant upgrades. Earthmoving activities such as excavation, grading, soil stockpiling, and filling would occur during construction. Pipelines would be installed through trenching and jack-and-bore tunneling along the roadways. As discussed in **Sections 3.6** through **3.11** and **Section 3.14**, construction activities would result in short-term increases in traffic from construction vehicles, and increases in fugitive dust, equipment exhaust emissions, and noise levels. Construction would also cause temporary aesthetic and visual impacts. However, these impacts would be localized to a smaller construction area. The impacts discussed would be typical of construction projects and the magnitude of these impacts would be less than significant with mitigation measures listed in the individual sections. If the minority populations are larger than 50 percent of the total population in the affected area, whether the impact to the minority populations would be disproportionate is discussed further.

No Project Alternative

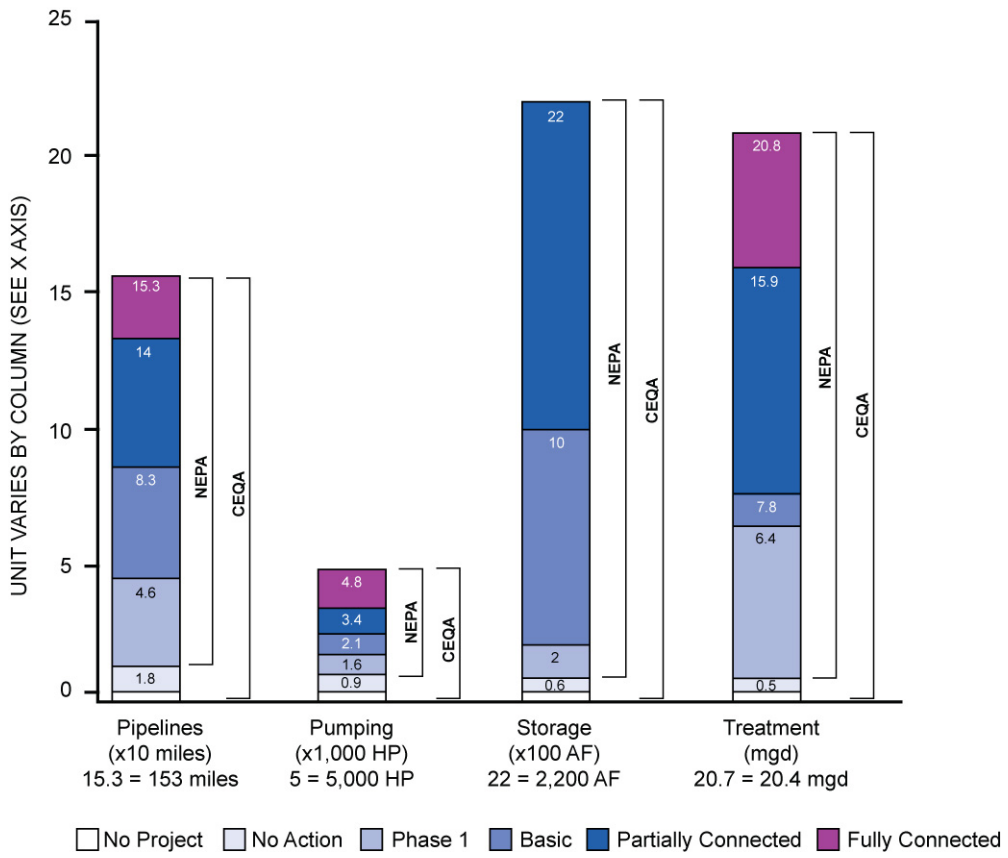
The NBWRP would not be implemented under the No Project Alternative, therefore no impacts would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.15-1, No Action**).

CHART 3.15-1
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

Under future baseline (2020) conditions, the minority populations within the region are anticipated to change in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

In Marin County, construction would only occur in the Novato North Service Area under the No Action Alternative. Project construction could cause adverse effects to traffic, air quality, and noise, as discussed in other sections of **Chapter 3**. The effects would occur in Census blocks 101100.1, 101200.1, 102100.3, 102201.1, and 102201.4 (see **Figure 3.15-1**). Most of the action area is predominantly white with small percentages of black, American Indian, Asian, and Native Hawaiian populations. The highest percentage of Hispanic population was 28.5 percent in Census block 102201.1 in Novato (U.S. Census Bureau, 2000). Census data shows that minorities are less than 50 percent of the population in any of the Census blocks and would not be disproportionately affected. No impact would occur to minority communities in San Rafael or Novato as a result of the No Project/No Action Alternative.

SVCSD

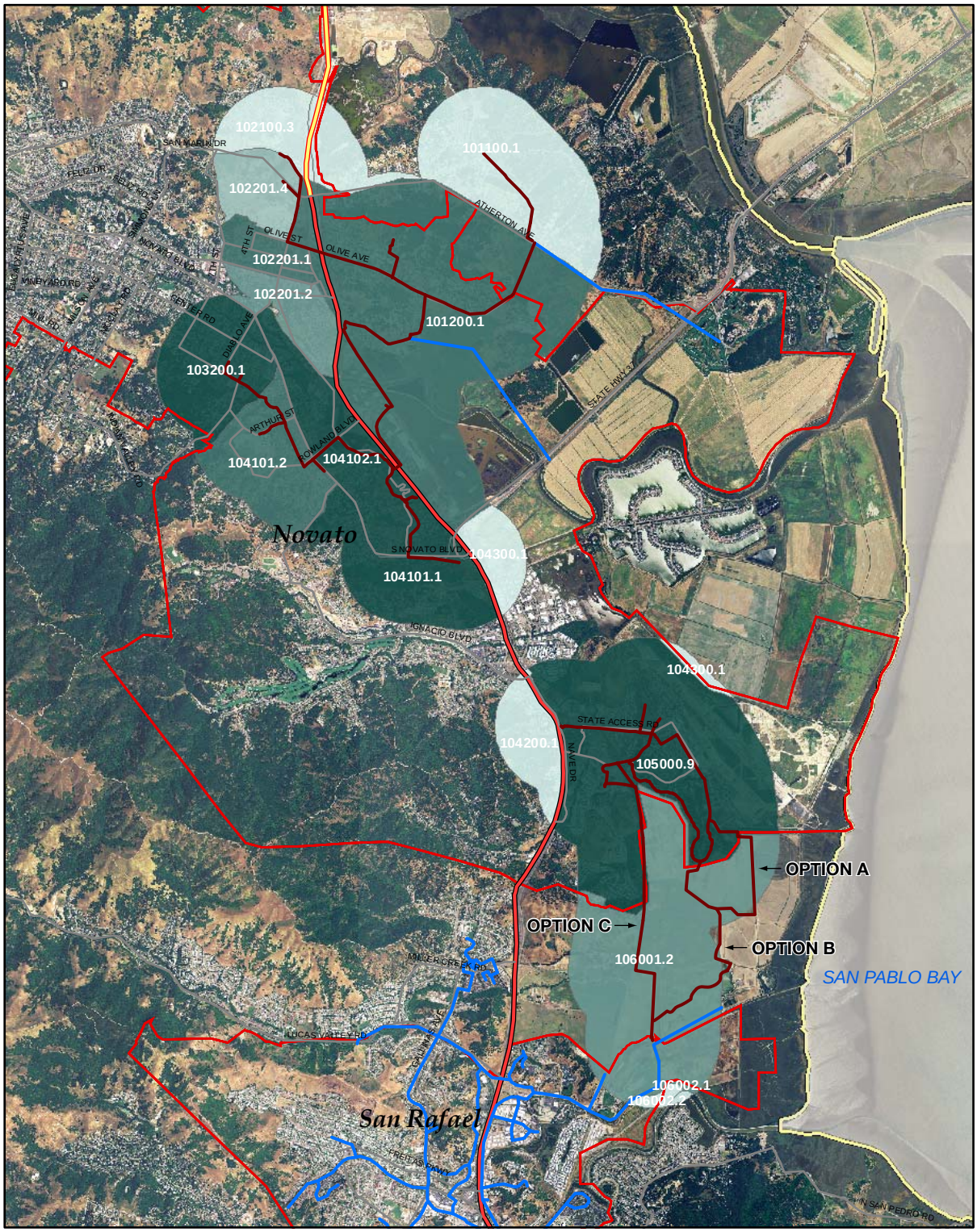
In Sonoma County, the Sonoma Valley Recycled Water Plan (SVRWP) Alignment 1A and the Napa Salt Marsh Restoration Project would be implemented under the No Action Alternative. This could affect Census blocks 150303.1, 150303.4, 150100.2, and 150606.1 (see **Figure 3.15-2**). Most of the action area is predominantly white with small percentages of black, American Indian, Asian, and Native Hawaiian, and other populations. The highest percentage of Hispanic population was 25 percent in Census block 150100.2 in 2000 (U.S. Census Bureau, 2000). Census data shows that minorities form less than 50 percent of the population in any of the Census blocks and would not be disproportionately affected. There would be no impacts to minority communities in Sonoma County as a result of the No Action Alternative.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.



0 0.25 0.5 1
Miles

N

Total Population - Marin County

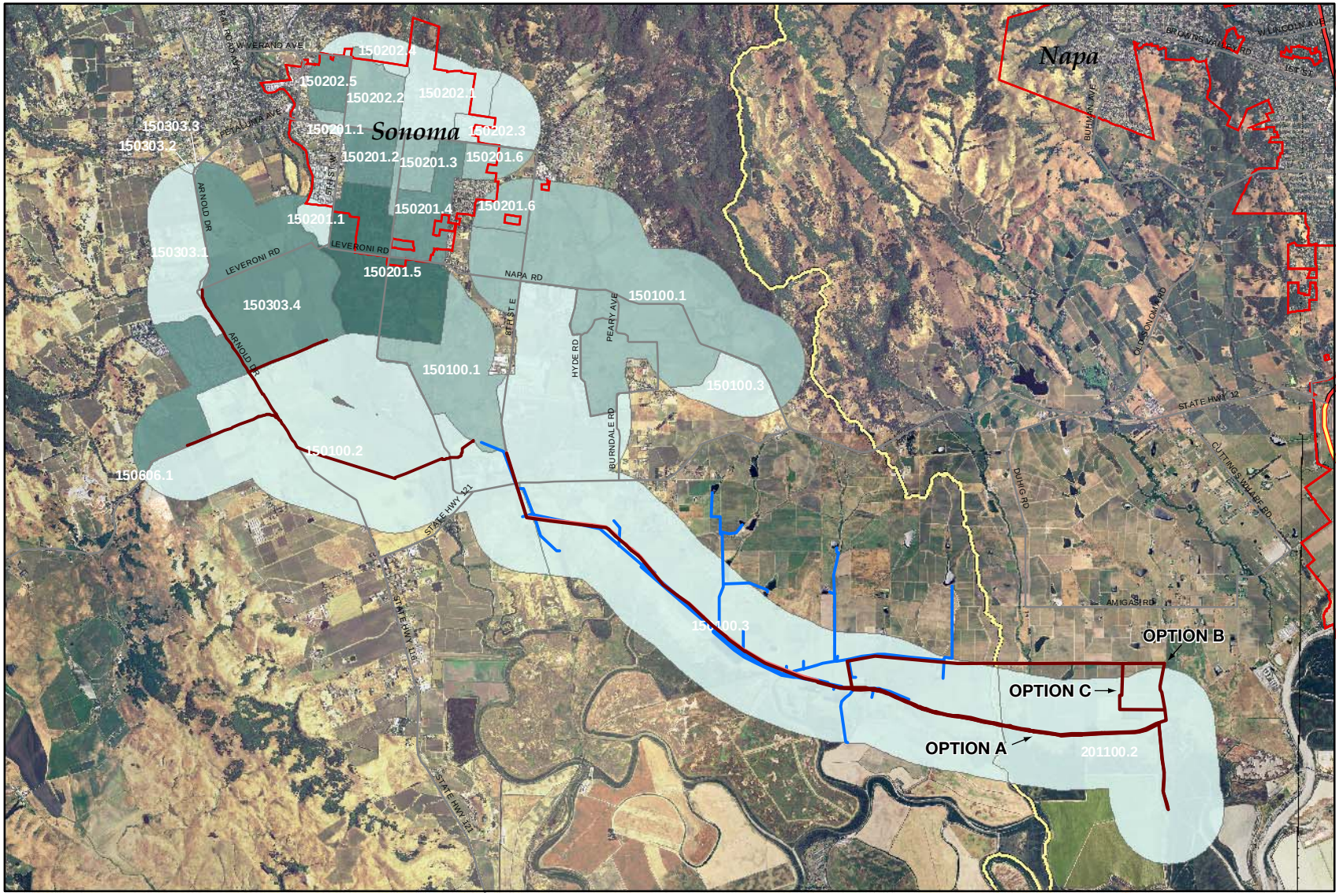
- Local Project Pipelines
- Existing Pipelines
- Urban Growth Boundary
- < 500
- 500 - 999
- 1,000 - 1,499
- 1,500 - 1,999
- > 2,000

SOURCE: CDM, 2008

NBWRA North Bay Water Recycling Program . 206088.01

Figure 3.15-1

Total Populations within Half-Mile of the Project Area in Marin County (Phase 1)



0 0.25 0.5 1
Miles

Total Population - Sonoma County

- New Project Pipeline
- Local Project Pipelines
- Existing Pipelines
- Urban Growth Boundary
- < 500
- 500 - 999
- 1,000 - 1,499
- 1,500 - 1,999
- > 2,000

N

SOURCE: CDM

NBWRA North Bay Water Recycling Program. 206088

Figure 3.15-2

Total Populations within Half-Mile of the Project Area in Sonoma County (Phase 1)

The impacts to minority populations under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/ NMWD and Novato SD/ NMWD

Figure 3.15-1 shows population and **Table 3.15-7** shows percentages of race and Hispanic origin within the one-half mile radius of the action area in San Rafael and Novato. Most of the area is predominantly white with small percentages of black, American Indian, Asian, and Native Hawaiian populations. The highest percentage of Hispanic population was 28.5 percent (between 1,000 and 1,499) in Census block 102201.1 in Novato. Census data shows that minorities are less than 50 percent of the population in any of the Census blocks and would not be disproportionately affected. There would be no environmental justice impacts to minority communities in San Rafael or Novato as a result of Phase 1 and thus no incremental effects as compared to the No Action Alternative.

TABLE 3.15-7
RACE AND HISPANIC POPULATION WITHIN ONE-HALF MILE RADIUS OF PIPELINE ALIGNMENTS IN MARIN COUNTY (IN PERCENTAGE)

Census Block	Population within half-mile radius	White	Black	American Indian	Asian	Native Hawaiian	Other	Two or more races	Hispanic	Non-Hispanic
101100.1	256	91.6%	< 1%	< 1%	3.2%	< 1%	1.1%	2.8%	3.5%	96.5%
101200.1	1858	86.2%	< 1%	< 1%	6.6%	< 1%	2.6%	3.1%	8.7%	91.3%
102100.3	191	86.5%	1.2%	< 1%	4.1%	< 1%	3.8%	3.2%	7.2%	92.8%
102201.1	1831	71.7%	4.1%	1.2%	4.1%	< 1%	13.7%	5.2%	28.5%	71.5%
102201.2	1468	77.9%	2.6%	< 1%	5.6%	< 1%	9.1%	4.1%	20.7%	79.3%
102201.4	973	84.5%	2.0%	< 1%	7.0%	< 1%	2.8%	2.9%	8.2%	91.8%
103200.1	2451	83.3%	1.4%	< 1%	5.8%	< 1%	5.1%	3.8%	11.1%	88.9%
104101.1	2020	80.3%	1.6%	< 1%	6.1%	< 1%	6.8%	4.4%	14.3%	85.7%
104101.2	1757	85.8%	1.7%	< 1%	6.5%	< 1%	2.9%	2.9%	7.4%	92.6%
104102.1	4954	73.0%	3.5%	< 1%	5.8%	< 1%	10.7%	6.3%	22.4%	77.6%
104200.1	292	83.9%	1.6%	< 1%	3.9%	< 1%	6.1%	3.8%	16.5%	83.5%
104300.1	120	91.9%	< 1%	< 1%	2.9%	< 1%	1.9%	2.5%	4.9%	95.1%
105000.9	2248	80.8%	3.0%	< 1%	4.7%	< 1%	6.6%	3.6%	15.7%	84.3%
106001.2	1375	79.7%	3.8%	< 1%	7.7%	< 1%	3.1%	5.2%	7.2%	92.8%
106002.1	26	74.1%	2.8%	< 1%	8.2%	< 1%	8.1%	5.8%	18.6%	81.4%
106002.2	84	81.7%	4.5%	< 1%	6.7%	< 1%	1.5%	5.0%	8.3%	91.7%

SOURCE: U.S. Census Bureau, 2000

SVCSD

Figure 3.15-2 shows population and **Table 3.15-8** shows percentages of race and Hispanic origin within a one-half mile radius of the proposed area in Sonoma County. As discussed above under No Action Alternative, most of the area is predominantly white with small percentages of black, American Indian, Asian, and Native Hawaiian populations. The highest percentage of Hispanic population was 25 percent (population of 500) in Census block 150100.2, which is less than

TABLE 3.15-8
RACE AND HISPANIC POPULATION WITHIN ONE-HALF MILE RADIUS OF PIPELINE ALIGNMENTS IN SONOMA COUNTY (IN PERCENTAGE)

Census Block	Population within half-mile radius	White	Black	American Indian	Asian	Native Hawaiian	Other	Two or more races	Hispanic	Non-Hispanic
150100.1	769	92.2%	< 1%	1.2%	1.9%	< 1%	2.9%	1.7%	6.7%	93.3%
150100.2	136	84.9%	< 1%	1.2%	< 1%	< 1%	9.7%	2.8%	25.0%	75.0%
150100.3	106	86.4%	< 1%	< 1%	< 1%	< 1%	10.6%	2.3%	21.9%	78.1%
150201.1	464	94.8%	< 1%	< 1%	2.1%	< 1%	< 1%	1.4%	5.3%	94.7%
150201.2	1194	92.5%	< 1%	< 1%	3.1%	< 1%	< 1%	2.4%	9.5%	90.5%
150201.3	634	96.5%	< 1%	< 1%	< 1%	< 1%	< 1%	1.4%	5.8%	94.2%
150201.4	1145	95.6%	< 1%	< 1%	< 1%	< 1%	1.0%	1.8%	3.2%	96.8%
150201.5	1665	92.5%	< 1%	< 1%	1.9%	< 1%	3.1%	1.9%	8.8%	91.2%
150201.6	603	96.8%	< 1%	< 1%	1.1%	< 1%	< 1%	1.7%	4.4%	95.6%
150202.1	397	96.4%	< 1%	< 1%	< 1%	< 1%	< 1%	1.2%	3.0%	97.0%
150202.2	859	91.8%	< 1%	< 1%	1.6%	< 1%	3.1%	2.6%	8.4%	91.6%
150202.3	43	92.3%	< 1%	< 1%	3.0%	< 1%	2.1%	2.0%	6.7%	93.3%
150202.4	42	91.5%	< 1%	< 1%	1.9%	< 1%	4.0%	1.7%	9.9%	90.1%
150202.5	1089	89.5%	< 1%	< 1%	1.8%	< 1%	3.9%	3.9%	11.3%	88.7%
150303.1	58	95.6%	< 1%	1.1%	1.3%	< 1%	1.0%	< 1%	5.6%	94.4%
150303.2	1	92.6%	< 1%	< 1%	1.1%	< 1%	2.3%	3.5%	6.3%	93.7%
150303.3	5	92.0%	< 1%	< 1%	2.7%	< 1%	2.3%	2.5%	6.8%	93.2%
150303.4	1031	96.3%	< 1%	< 1%	1.8%	< 1%	< 1%	< 1%	5.2%	94.8%
201100.2	105	87.8%	< 1%	< 1%	1.8%	< 1%	7.2%	2.3%	15.2%	84.8%

SOURCE: U.S. Census Bureau 2000

50 percent of the population in any of the Census blocks. There would be no disproportionate impacts to minority communities in Sonoma County as a result of Phase 1, which would be similar to that discussed under No Action Alternative (see above).

A portion of the proposed pipeline for Option B (see Figure 3.15-2) falls outside the half-mile radius. Because of the agricultural nature of the area, the total population in the vicinity of the Option B pipeline is likely to be small. The inclusion of any additional population would not change the overall ethnic makeup of the affected area. White population would continue to be the majority of the population and minorities would remain less than 50 percent. There would be no environmental justice impacts as a result of implementing Option B.

Napa SD

Figure 3.15-3 shows population and **Table 3.15-9** shows percentages of race and Hispanic origin within the one-half mile radius of the action area in Napa County. As discussed above under No Action Alternative, most of the area is predominantly white with small percentages of black, American Indian, Asian, and Native Hawaiian populations. The highest percentage of Hispanic population was 53.4 percent (between 500 and 999) in Census block 200300.5. In Napa County, project construction from the Locally Funded MST Option 1 would result in the impacts discussed above and would occur in Census blocks 200300.3, 200300.4, 200300.5, 200900.1,

TABLE 3.15-9
RACE AND HISPANIC POPULATIONS WITHIN ONE-HALF MILE RADIUS OF PIPELINE ALIGNMENTS IN NAPA COUNTY (IN PERCENTAGE)

Census Block	Population within ½ mile radius	White	Black	American Indian	Asian	Native Hawaiian	Other	Two or more races	Hispanic	Non-Hispanic
200300.1	382	88.1%	< 1%	1.3%	1.7%	< 1%	4.4%	4.6%	7.9%	92.1%
200300.2	112	83.7%	< 1%	< 1%	1.4%	< 1%	8.3%	5.1%	17.4%	82.6%
200300.3	2075	67.8%	< 1%	1.3%	1.5%	< 1%	24.3%	4.1%	47.4%	52.6%
200300.4	1494	81.5%	< 1%	1.6%	1.5%	< 1%	11.3%	2.7%	25.0%	75.0%
200300.5	995	64.8%	< 1%	< 1%	< 1%	< 1%	27.8%	5.6%	53.4%	46.6%
200400.1	1087	93.9%	< 1%	< 1%	< 1%	< 1%	1.9%	2.9%	5.9%	94.1%
200400.2	88	80.6%	< 1%	1.0%	1.3%	< 1%	13.0%	3.5%	26.3%	73.7%
200802.3	90	89.5%	< 1%	< 1%	2.2%	< 1%	4.4%	2.4%	16.5%	83.5%
200900.1	912	68.1%	20.9%	1.5%	4.1%	< 1%	1.9%	3.2%	15.2%	84.8%
201002.1	61	85.1%	2.5%	1.4%	1.2%	< 1%	4.3%	4.9%	10.0%	90.0%
201100.2	105	87.8%	< 1%	< 1%	1.8%	< 1%	7.2%	2.3%	15.2%	84.8%
201400.2	819	93.5%	< 1%	1.1%	2.4%	< 1%	< 1%	2.4%	2.6%	97.4%
201400.4	485	94.1%	< 1%	< 1%	< 1%	< 1%	1.1%	2.8%	4.8%	95.2%
201400.5	1	93.9%	< 1%	< 1%	1.8%	< 1%	1.3%	2.0%	5.4%	94.6%
201400.6	668	93.4%	< 1%	< 1%	1.7%	< 1%	1.4%	2.5%	5.9%	94.1%

SOURCE: U.S. Census Bureau, 2000

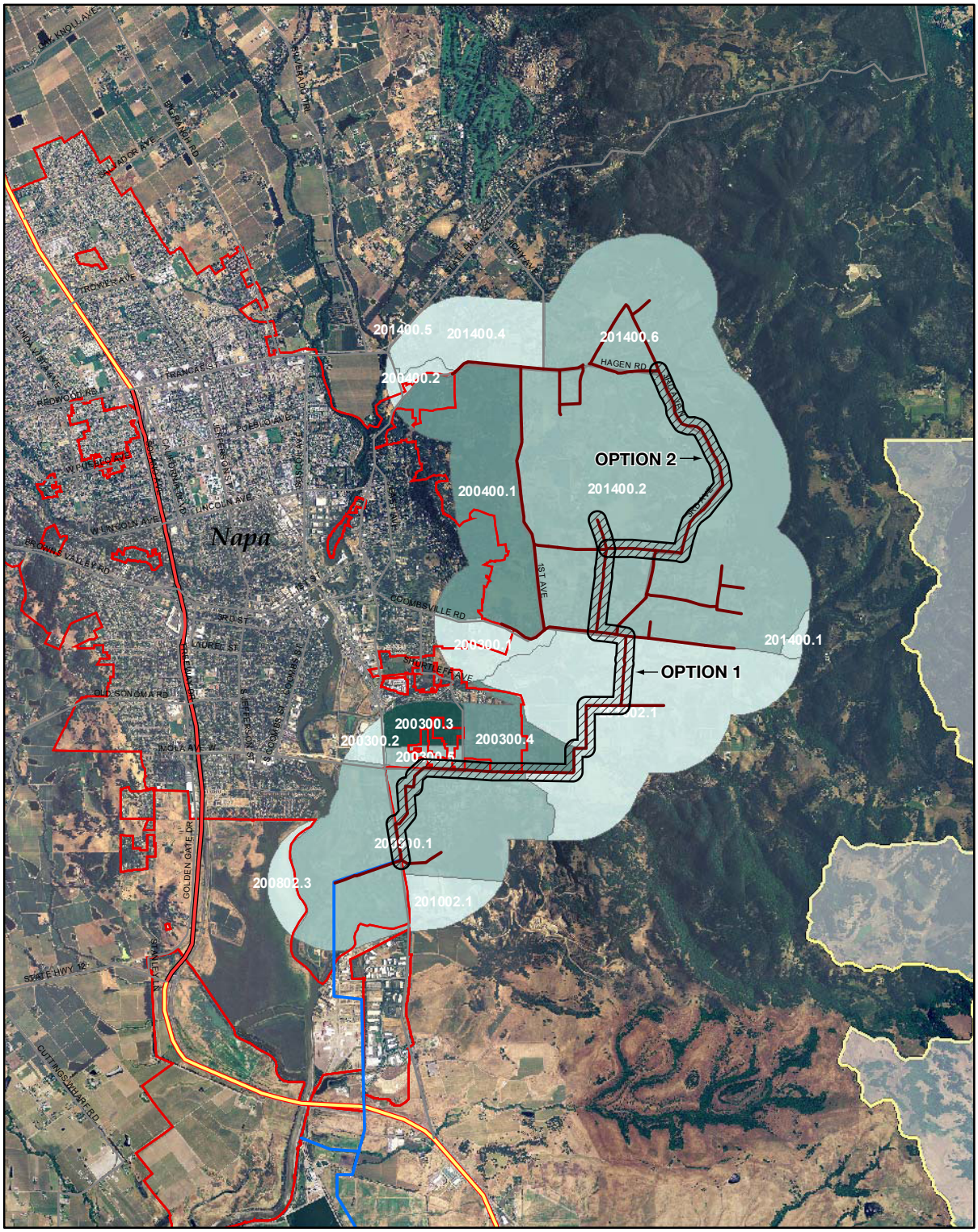
201002.1, and 201400.2 (see **Figure 3.15-3**). Most of the area is predominantly white with small percentages of black, American Indian, Asian, and Native Hawaiian populations. The highest percentage of Hispanic population was 53.4 percent in Census block 200300.5 (U.S. Census Bureau, 2000), however the proposed pipelines would extend through other areas and would not traverse through minority neighborhoods only. The impact would therefore apply to all neighborhoods and would not be disproportionate. No impact is expected.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to minority populations under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Because this is a program-level analysis, potential minority populations were identified for the whole census tracts in areas with the additional pipeline routes as compared to Phase 1.



0 0.25 0.5 1
Miles

N

Total Population - Napa County

- Local Project Pipelines
- Existing Pipelines
- Urban Growth Boundary
- < 500
- 500 - 999
- 1,000 - 1,499
- 1,500 - 1,999
- > 2,000

SOURCE: CDM, 2008

NBWRA North Bay Water Recycling Program . 206088.01

Figure 3.15-3

Total Populations within Half-Mile of the Project Area in Napa County (Phase 1)

LGVSD/NMWD and Novato SD/NMWD

In Marin County, new proposed pipelines under the Basic System would extend through Census tract 1011. The white population alone made up about 93 percent of the population of 2,539. Black, American Indian, Asian, Native Hawaiian and other races each made up less than 3 percent of the population. Hispanic or Latino, of any race, was about 3 percent of the population (U.S. Census Bureau, 2000). Based on these percentages, project construction would not disproportionately affect minority populations in Marin County. There would be no impact.

SVCSD

In Sonoma County, the proposed pipelines towards Central Sonoma Valley Service Area would extend through Census tracts 150302, 150303, and 1505. In Census tract 150302, the white population made up about 76 percent of the population of 9,227. Black, American Indian, Asian, Native Hawaiian each made up less than 1 percent of the population. Other race was about 16 percent. Hispanic or Latino, of any race, was about 41 percent of the population (U.S. Census, Bureau, 2000).

In Census tract 150303, the white population made up about 94 percent of the population in the Census tract of 4,456. Black, American Indian, Asian, Native Hawaiian, and other each made up less than 2 percent of the population. Hispanic or Latino, of any race, was about 6 percent of the population (U.S. Census Bureau, 2000).

In Census tract 1505, the white population made up about 90 percent of the population of 6,149. Black, American Indian, Asian, Native Hawaiian, and other each made up less than 3 percent of the population. Hispanic or Latino, of any race, was about 8 percent of the population (U.S. Census Bureau, 2000).

Given that the minority populations form only a small percentage in the action area in Sonoma County, project construction would not disproportionately affect minority populations. There would be no environmental justice impacts, which would be similar to that discussed under the No Action Alternative.

Napa SD

In Napa County, the proposed pipelines in the Carneros East Service Area would extend through Census tract 2011. The White population made up about 91 percent of the population of 4,186. Black, American Indian, Asian, Native Hawaiian and other races each made up less than 4 percent of the population. Hispanic or Latino, of any race, was about 10 percent of the population (U.S. Census Bureau, 2000). Given that the minority populations form only a small percentage in the action area in Napa County, project construction would not disproportionately affect minority populations. There would be no environmental justice impacts, which would be similar to that discussed under the No Action Alternative.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary

capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to minority populations under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD and Novato SD/NMWD

In Marin County, the additional pipelines under the Partially Connected System would extend through Census tracts 106001, 106002, and 1082. In Census tract 106001, the white population made up about 81 percent of the population of 3,826. Black, American Indian, Asian, Native Hawaiian, and other each made up less than 7 percent of the population. Hispanic or Latino, of any race, was about 7 percent of the population (U.S. Census Bureau, 2000).

In Census tract 106002, the white population made up about 78 percent of the population of 5,745. Black, American Indian, Asian, Native Hawaiian, and other each made up less than 7 percent of the population. Hispanic or Latino, of any race, was about 2 percent of the population (U.S. Census Bureau, 2000).

In Census tract 1082, the white population made up about 82 percent of the population of 6,120. Black, American Indian, Asian, Native Hawaiian, and other each made up less than 3 percent of the population. Hispanic or Latino, of any race, was about 9 percent of the population (U.S. Census Bureau, 2000).

Given that the minority populations form only a small percentage in the action area in Marin County, project construction would not disproportionately affect minority populations. There would be no impacts, which would be similar to that discussed under the No Action Alternative.

SVCSD

In Sonoma County, the proposed pipelines under the Partially Connected System would extend through new areas in Census tract 1501 and Census tract 150606. In Census tract 1501, the white population made up about 93 percent of the population of 2,670. Black, American Indian, Asian, Native Hawaiian and other races each made up less than 6 percent of the population. Hispanic or Latino, of any race, was about 15 percent of the population (U.S. Census Bureau, 2000).

In Census tract 150606, white alone made up about 85 percent of the population of 7,210. Black, American Indian, Asian, Native Hawaiian and other races each made up less than 6 percent of the population. Hispanic or Latino, of any race, was about 13 percent of the population (U.S. Census Bureau, 2000).

Project construction would not disproportionately affect minority populations in Sonoma County. There would be no impacts.

Napa SD

In Napa County, the additional pipelines under the Partially Connected System would extend through Census tracts 200801 and 200802. In Census tract 200801, the white population made up about 67 percent of the population of 7,491. Black, American Indian, Asian, and Native Hawaiian each made up less than 2 percent of the population. Other races were about 29 percent of total population. Hispanic or Latino, of any race, was about 45 percent of the population (U.S. Census Bureau, 2000).

In Census tract 200802, white alone made up about 84 percent of the population of 4,991. Black, American Indian, Asian, and Native Hawaiian and other races each made up less than 8 percent of the population. Hispanic or Latino, of any race, was about 22 percent of the population (U.S. Census Bureau, 2000).

Given that the minority populations form only a small percentage in the action area in Napa County, project construction would not disproportionately affect minority populations. There would be no environmental justice impacts, which would be similar to that discussed under the No Action Alternative.

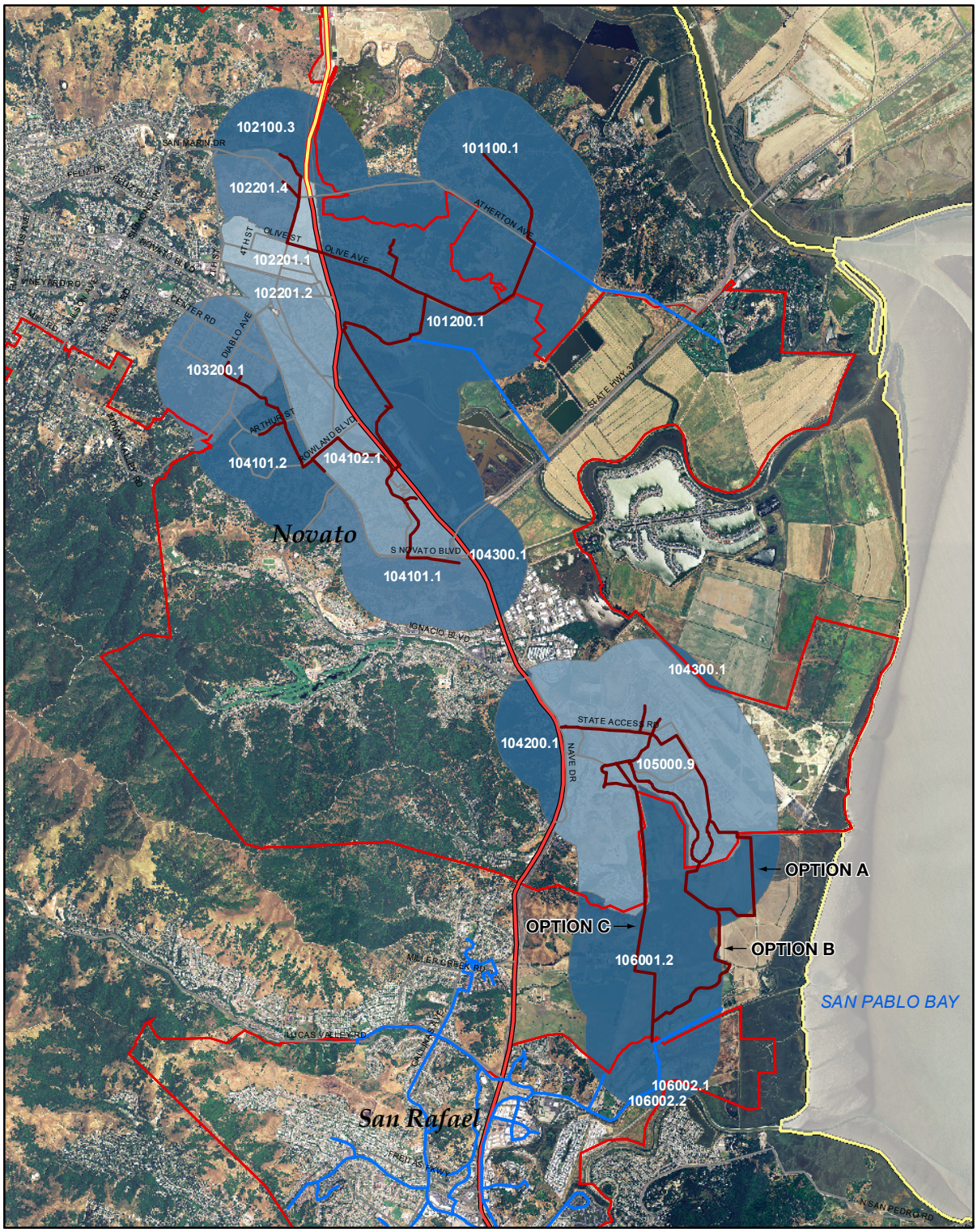
Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System. New pipelines under the Fully Connected System would extend through the same Census tracts as the Partially Connected System and affect similar percentages of minority populations at the Census tract level. There would be no additional environmental justice impacts. Please refer to the discussions above.

Impact 3.15.2: Project construction could result in environmental impacts that could disproportionately affect nearby low-income communities. (No Impact)

This analysis assumes the California Water Code definition for disadvantaged communities to identify potentially disproportionate impacts to low-income communities. Using the 2000 Census data, the statewide annual median household income for disadvantaged communities was $37,944, rounded up to $38,000 for this analysis. **Figure 3.15-4** shows median household incomes for Census blocks in the North Bay Area. Low-income communities were identified within a one-half-mile radius of the proposed pipeline alignments and compared to the threshold of $38,000.



SOURCE: CDM, 2008

NBWRA North Bay Water Recycling Program . 206088.01

Figure 3.15-4
Median Household Income within 1/2-Mile of Pipeline (Phase 1)

As discussed in **Sections 3.6** through **3.11** and **Section 3.14**, construction activities would result in short-term increases in traffic from construction vehicles, and increases in fugitive dust, equipment exhaust emissions, and noise levels. Construction would also cause temporary aesthetic and visual impacts however, these impacts would be localized to a smaller construction area. The impacts discussed would be typical of construction projects and the magnitude of these impacts would be less than significant with mitigation measures listed in the individual sections. If there are low-income communities in the affected area (i.e., if the median household income levels were less than the threshold of $38,000 discussed above), whether the impact to the communities would be disproportionate is discussed further.

No Project Alternative

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.15-1, No Action**).

Under future baseline (2020) conditions, the low-income populations within the region is anticipated to change in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

In Marin County, construction would only occur in the Novato North Service Area under the No Action Alternative. Project construction could cause environmental impacts discussed under No Action Alternative (see above). The impacts would occur in Census blocks 101100.1, 101200.1, 102100.3, 102201.1, and 102201.4. According to the Census data, median household income for Census block 102201.1 was $38,571, which is slightly higher than the threshold and the remaining Census blocks had a median household income over $50,000. However the proposed pipelines would extend through other areas and would not traverse only through low-income neighborhoods. The impact would therefore apply to all neighborhoods and would not be disproportionate. No impact is expected.

SVCSD

Project construction impacts would occur in Census blocks 150303.1, 150303.4, 150100.2, and 150606.1, and 201100.2. All Census blocks have median household incomes greater than the median income threshold. There would be no impacts to low-income communities in Sonoma County.

A portion of the proposed pipeline for Option B falls outside the half-mile radius. The median income of the affected area is greater than $65,000. The inclusion of any additional population would not substantially change median income of the affected area. It would continue to be greater than the threshold for low income communities. There would be no environmental justice impacts as a result of implementing Option B.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

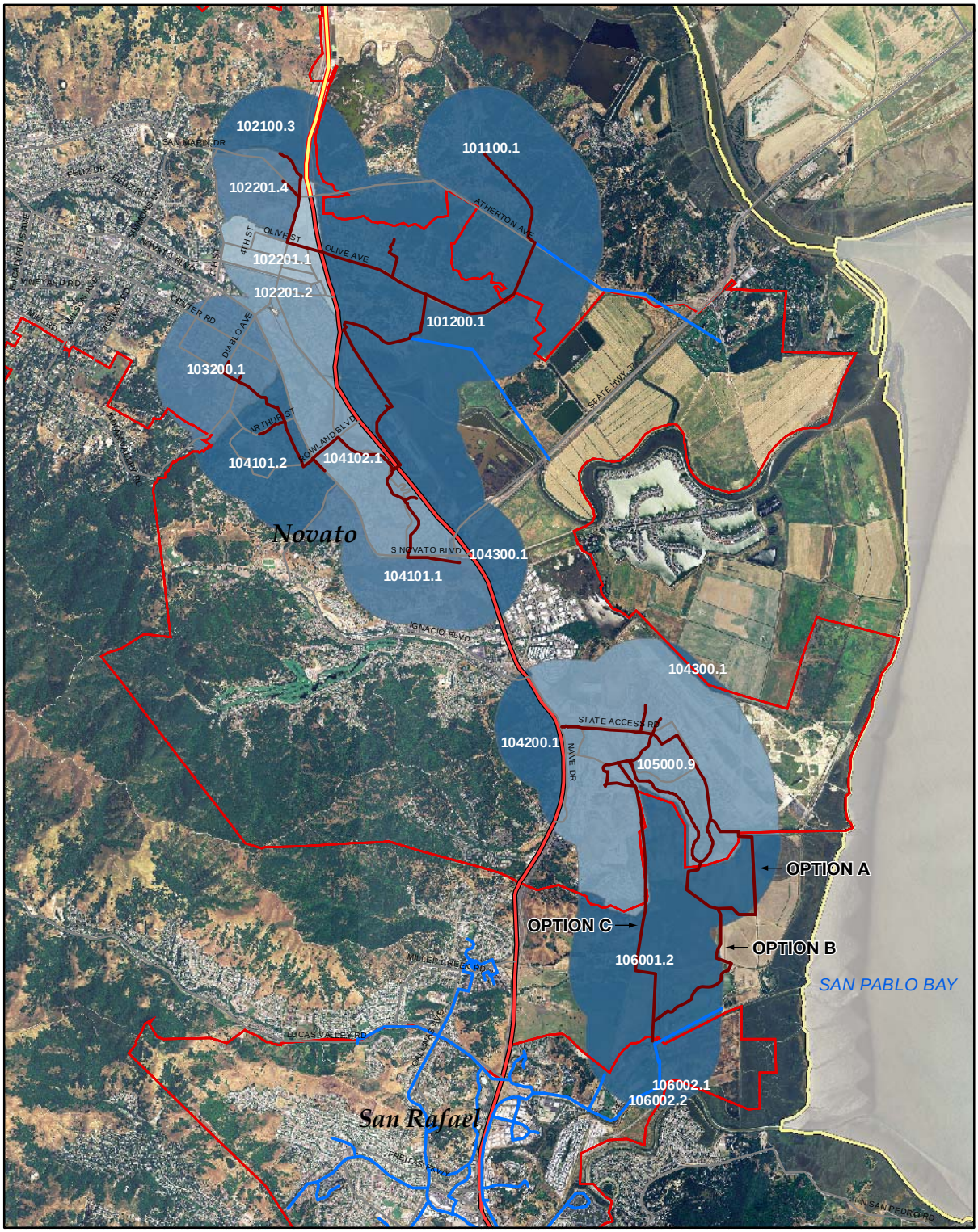
The impacts to potential low-income communities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD and Novato SD/NMWD

Figure 3.15-5 shows median household income levels within a one-half mile of the pipeline alignments in Novato and San Rafael. Census blocks 102201.1 and 105000.9 show median household incomes less than $38,000. The project construction activities could affect the low-income communities in these blocks. The impact would be similar to those discussed under No Action Alternative; no impact would occur.

SVCSD

Figure 3.15-6 shows Census blocks and median household income levels within a one-half-mile radius of the proposed components in Sonoma County. Three Census blocks in the area show median household incomes less than $38,000; out of which two blocks (150303.2 and 150303.3) are located just within the one-half mile buffer line around the pipelines and have few to no households in the potentially affected areas and one block (150201.6) had a median household income of $25,827 (i.e., approximately 32 percent lower than the threshold). The impact would be similar to that discussed the LGVSD and Novato SD above.



0 0.25 0.5 1
Miles

N

Median Household Income - Marin County

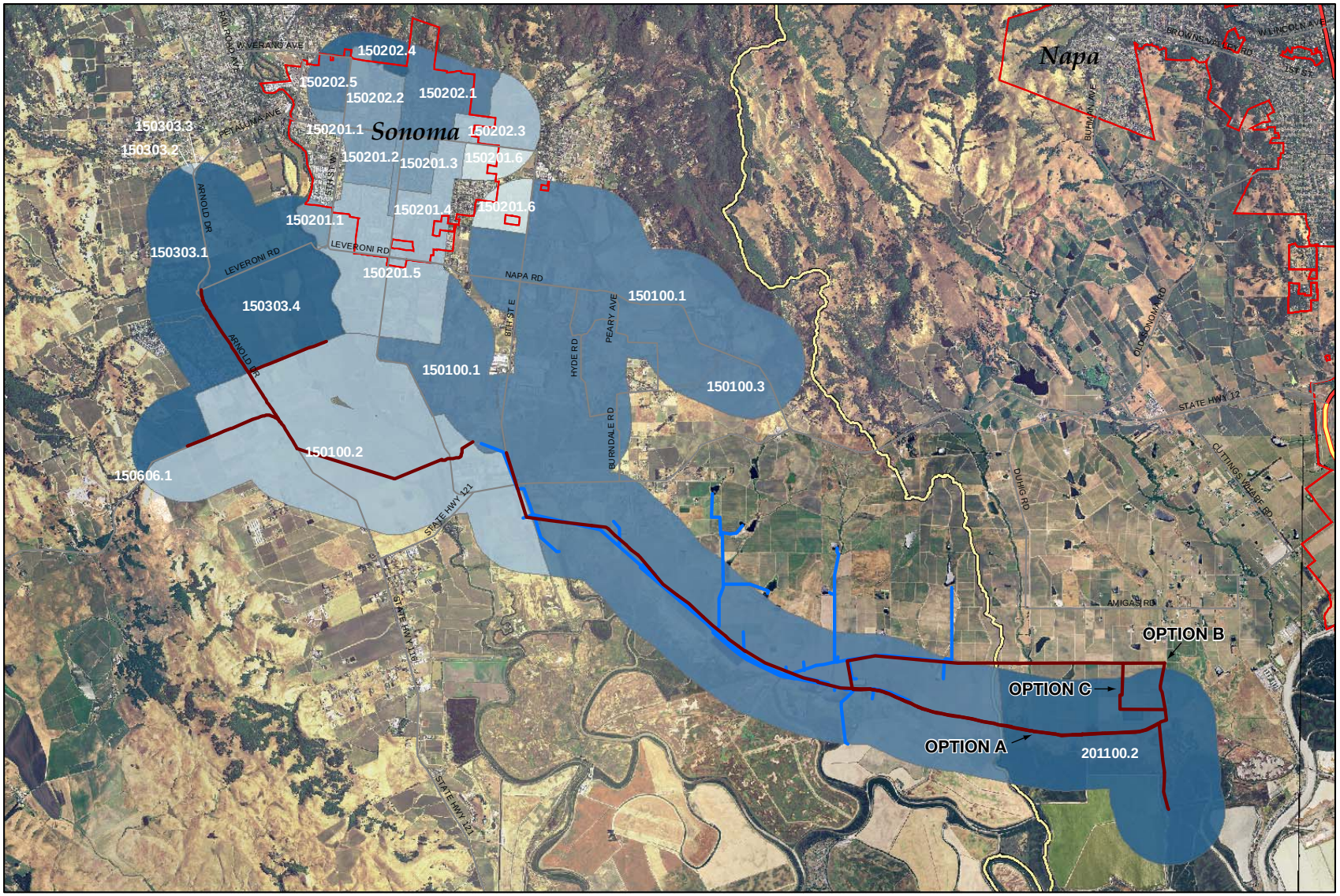
- Local Project Pipelines
- Existing Pipelines
- Urban Growth Boundary
- < $38,000
- $38,000 - $44,999
- $45,000 - $54,999
- $55,000 - $64,999
- > $65,000

SOURCE: CDM, 2008

NBWRA North Bay Water Recycling Program . 206088.01

Figure 3.15-5

Median Household Incomes within Half-Mile of the Project Area in Marin County (Phase 1)



0 0.25 0.5 1
Miles

Median Household Income - Sonoma County

- New Project Pipeline
- Local Project Pipelines
- Existing Pipelines
- Urban Growth Boundary
- < $38,000
- $38,000 - $44,999
- $45,000 - $54,999
- $55,000 - $64,999
- > $65,000

N

SOURCE: CDM

NBWRA North Bay Water Recycling Program. 206088

Figure 3.15-6

Median Household Incomes within Half-Mile of the Project Area in Sonoma County (Phase 1)

Napa SD

Figure 3.15-7 shows median household income levels within a one-half mile of the pipeline alignments in Napa County. Census block 200300.4 showed median household of $35,026, which was less than the threshold. Project construction impacts would occur in Census blocks 200300.3, 200300.4, 200300.5, 200900.1, 201002.1, and 201400.2. According to the Census data, median household incomes were greater than the threshold for all the Census blocks except for the Census block 200300.4, which had a median household income of $35,026 (slightly lower than the threshold). Disadvantaged communities along Imola Avenue would be potentially affected by project construction. However, the pipeline construction would occur in other areas with both low-income and higher income neighborhoods and would not disproportionately affect the low-income communities along Imola Avenue. No impact is expected.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to potential low-income communities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD and Novato SD/NMWD

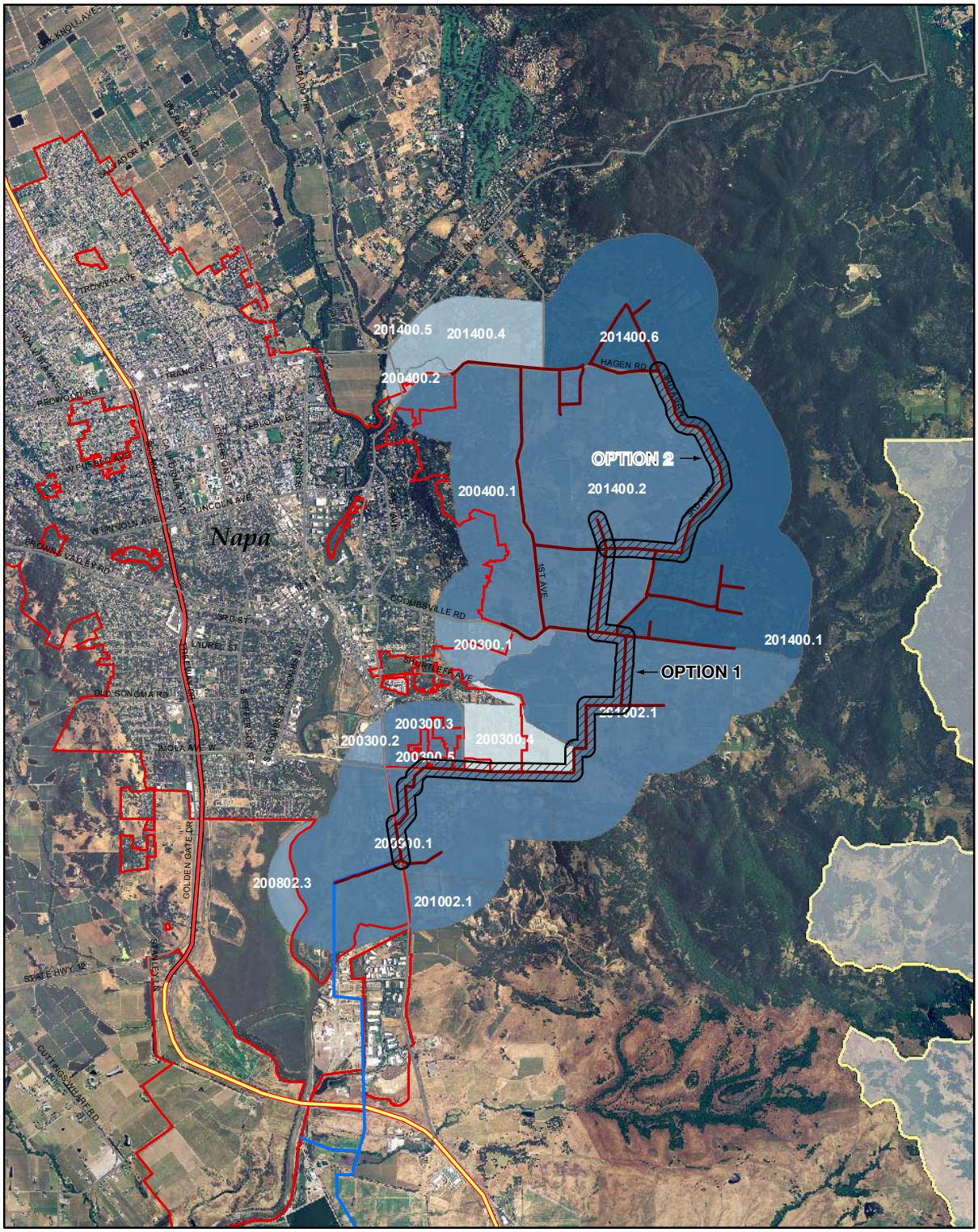
In Marin County, Census tract 1011 could be affected by construction activities under the Basic System. Median household income in Census tract 1011 was $99,899, which is substantially higher than the threshold of $38,000. There would be no low-income communities in the action area, therefore no additional impact would occur.

SVCSD

In Sonoma County, Census tracts 150302, 150303, and 1505 could be affected by construction activities under the Basic System. The median household incomes were $46,807, $53,373, and $60,678 in the tracts respectively, which were higher than the threshold of $38,000. There would be no low-income communities in the action area, therefore no additional impact would occur.

Napa SD

In Napa County, Census tract 2011 could be affected by construction activities under the Basic System. The median household income in the tract was $71,696, which is substantially higher than the threshold of $38,000. There would be no low-income communities in the action area, therefore no further impact would occur.



0 0.25 0.5 1
Miles

N

Median Household Income - Napa County

- Local Project Pipelines
- Existing Pipelines
- Urban Growth Boundary
- < $38,000
- $38,000 - $44,999
- $45,000 - $54,999
- $55,000 - $64,999
- > $65,000

SOURCE: CDM, 2008

NBWRA North Bay Water Recycling Program . 206088.01

Figure 3.15-7

Median Household Incomes within Half-Mile of the Project Area in Napa County (Phase 1)

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to potential low-income communities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/ NMWD and Novato SD/ NMWD

In Marin County, Census tracts 106001, 106002, and 1082 could be affected by construction activities under the Partially Connected System. Median household income was $63,974 in Census tract 106001, $76,564 in Census tract 106002, and $57,029 in Census tract 1082, which are higher than the threshold of $38,000. There would be no low-income communities in the action area, therefore no additional impact would occur.

SVCSD

In Sonoma County, Census tracts 1501 and 150606 could be affected by construction activities under the Partially Connected System. Median household income was $55,000 in Census tract 1501, and $77,281 in Census tract 150606, which are higher than the threshold of $38,000. There would be no low-income communities in the action area, therefore no additional impact would occur.

Napa SD

In Napa County, Census tracts 200801 and 200802 could be affected by construction activities under the Partially Connected System. The median household incomes in both the tracts were $51,442 and $51,442 respectively, which are higher than the threshold of $38,000. There would be no low-income communities in the action area, therefore no additional impact would occur.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System. There would be no additional Census tracts affected by the Fully Connected System relative to the Partially Connected System, therefore no additional impacts would occur.

Impact 3.15.3: Increased water and sewer fees. The NBWRP would provide recycled water and could result in an increase water and sewer fees that would disproportionately affect minority and low-income populations. (No Impact)

The NBWRP would provide recycled water to the communities that can connect to the distribution pipelines in the action area including minority and non-minority population. Costs associated with the project are discussed in **Section 3.16, Socioeconomics**. The member agencies would likely increase customer water and sewer fees to repay a portion of the loans acquired through implementation of the NBWRP. A fee would also be charged for use of the recycled water generated by the NBWRP. As described in **Section 3.16, Socioeconomics**, the exact funding mechanisms for the NBWRP are yet to be determined, therefore potential changes in customers' sewer fees cannot be evaluated. The recycled water use fee and the level of increase in the water or sewer fees are not known at this time. The member agencies would apply the recycled water use fees to the users who would receive the recycled water in the action area. The fees or any increased water and sewer rates would be applied equally to all customers in the service areas (i.e., not only to minority and low-income populations). As discussed in **Impacts 3.15.1** and **3.15.2**, the action area does not include a high number of minority and low-income populations. Therefore, there would be no disproportionate increase in water and sewer fees on low-income populations.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impacts would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.15-1, No Action**).

Under future baseline (2020) conditions, the low-income and minority populations within the region are anticipated to change in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

LGVSD/NMWD and Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD and SVCSD

The member agencies would construct portions of the recycled water projects proposed in the Marin and Sonoma counties under the No Action Alternative. The impact would be similar to that discussed above.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The cost impacts related to water and sewer fees under Phase 1 would be similar to the impacts discussed for the No Action Alternative, although incrementally greater in proportion to the facilities constructed under this alternative. Refer to **Section 3.16, Socioeconomics**, for implementations costs for Phase 1 and all the Alternatives. The impacts would be similar to those discussed above, although incrementally greater.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The cost impacts related to water and sewer fees under the Basic System would be similar to the impacts discussed for Phase 1, although incrementally greater in proportion to the facilities constructed under this alternative. Refer to **Section 3.16, Socioeconomics**, for implementations costs for Phase 1 and all the Alternatives. The impacts would be similar to those discussed above, although incrementally greater.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The cost impacts related to water and sewer fees under the Partially Connected System would be similar to the impacts discussed for the Basic System, although incrementally greater in proportion to the facilities constructed under this alternative. Refer to Section 3.16, Socioeconomics, for implementations costs for Phase 1 and all the Alternatives. The impacts would be similar to those discussed above, although incrementally greater.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The cost impacts related to water and sewer fees under the Fully Connected System would be similar to the impacts discussed for the Partially Connected System, although incrementally greater in proportion to the facilities constructed under this alternative. Refer to **Section 3.16, Socioeconomics**, for implementations costs for Phase 1 and all the Alternatives.

Impact 3.15.4: Impact on Farm Workers. The NBWRP would provide recycled water and could disproportionately affect minority populations. (No Impact)

Approximately 40 percent of all farm workers are foreign-born, which mostly originate in rural communities in Latin America, principally Mexico (USDA, 2008). The NBWRP would increase agricultural production, which would increase farm employment. The increase in farm jobs would affect both minority and non-minority populations and would not cause a disproportionate impact. The agricultural lands would be irrigated with recycled water instead of groundwater or surface water supplies (see **Section 3.4, Water Quality**, for public health issue related to recycled water use). Bilingual signage would be installed to indicate recycled water use. No disproportionate impact is expected.

No Project Alternative

No project would be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.15-1, No Action**).

Under future baseline (2020) conditions, the minority population within the region is anticipated to change in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

Some portions of the recycled water projects would be implemented under No Action Alternative and impacts would be associated with SVCSD and Napa SD as discussed below. **Table 3.15-10** provides the new acres of vineyard production under the No Action Alternative.

TABLE 3.15-10
NEW ACRES OF VINEYARD PRODUCTION

	No Action Alternative	Phase 1	Basic System	Partially Connected System	Fully Connected System
Novato SD					
New acres of vineyard production	-	-	-	841	3,564
Anticipated number of new farm jobs	-	-	-	<80	<240
SVCSD					
New acres of vineyard production	1,954	3,195	4,039	6,763	6,280
Anticipated number of new farm jobs	<160	<240	<320	<480	<480
Napa SD					
New acres agricultural production	417	3,085	5,947	8,370	8,370
Anticipated number of new farm jobs	<80	~240	<480	<640	<640

NOTE: There would be no new farm production for LGVSD, therefore is not listed in the table.

SOURCE: CDM, 2008; UCCE, 2008

LGVSD/NMWD and Novato SD/NMWD

Farm worker employment under the No Action Alternative would remain similar to existing conditions. Agricultural production would continue at existing levels and farmers would employ farm workers to meet labor demands. There would be no disproportionate impacts to minority farm workers.

SVCSD

As shown in Table 3.15-10, under the No Action Alternative, vineyard production would increase by 1,954 acres in Sonoma County. New production would require additional farm labor and provide employment to farm workers. Based on University of California Crop Extension estimates (2003), labor requirements for wine grapes production would be about 80 full time workers per 1,000 acres, therefore approximately 160 new farm worker jobs would be created. The increase in farm jobs would affect both minority and non-minority populations and would not cause a disproportionate impact to minority farm workers. The agricultural lands would be irrigated with recycled water instead of groundwater or surface water supplies (see **Section 3.4, Water Quality**, for public health issue related to recycled water use). Bilingual signage would be installed to indicate recycled water use. No disproportionate impact is expected.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts related to farm workers under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD and Novato SD/NMWD

The NBWRP does not include any agricultural land in Marin County. Therefore, no impact would occur in Marin County.

SVCSD

Under Phase 1, the NBWRP would require greater than 240 farm employees (see Table 3.15-10). The change in the farm employment would be greater than that discussed under No Action Alternative; however there would be no disproportionate impacts to minority populations. No impact is expected.

Napa SD

The impacts under No Action Alternative for Napa SD would be similar to those discussed for SVCSD for approximately 80 new farm jobs that would be created. Please refer to Table 3.15-10. There would be no impact.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts related to farm workers under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD and Novato SD/NMWD

See discussion under Phase 1. No impact would occur.

SVCSD

Please refer to the discussion above. Under the Basic System, there would be 320 farm employees required; therefore the change in the farm worker employment would be greater under the Basic System as compared to the No Action Alternative. However, the change in the employment would not disproportionately affect minority populations (see discussion above). No impact would occur.

Napa SD

The impacts associated with the Basic System would be equivalent to the impacts discussed for Phase 1. Any additional vineyards served by the Basic System would require new farm employees as shown in Table 3.15-10 in addition to Phase 1. However, there would be no disproportionate effect on farm worker employment (see discussion under No Action Alternative and Phase 1).

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts related to farm workers under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Novato SD/NMWD

Under the Partially Connected System, 841 acres of new vineyard production would occur that would require less than 80 new farm employees (see Table 3.15-10). However, the increase in employment would affect both minority and non-minority populations. No disproportionate impact to minority population would occur. No impact is expected.

SVCSD and Napa SD

Please refer to the impact discussion under the Basic System and Table 3.15-10 for the new farm jobs required. The impact would be similar to that discussed above. No impact would occur.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts related to farm workers under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Novato SD/ NMWD, SVCSD, Napa SD

Please refer to the discussed under the Partially Connected System and Table 3.15-10 for the new farm jobs required. The impact would be similar to that discussed above. No impact would occur.

3.15.4 Impact Summary by Service Area

Table 3.15-11 provides a summary of potential environmental justice impacts associated with implementation of the NBWRP.

TABLE 3.15-11
POTENTIAL IMPACTS AND SIGNIFICANCE – ENVIRONMENTAL JUSTICE

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
Impact 3.15.1: Disproportionate impacts to minority population from project construction.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	NI	NI	NI	NI
Alternative 1: Basic System	NI	NI	NI	NI
Alternative 2: Partially Connected System	NI	NI	NI	NI
Alternative 3: Fully Connected System	NI	NI	NI	NI
Impact 3.15.2: Disproportionate impacts to low-income population from project construction.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	NI	NI	NI	NI
Alternative 1: Basic System	NI	NI	NI	NI
Alternative 2: Partially Connected System	NI	NI	NI	NI
Alternative 3: Fully Connected System	NI	NI	NI	NI
Impact 3.15.3: Disproportionate impacts from increased water or sewer fees.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	NI	NI	NI	NI
Alternative 1: Basic System	NI	NI	NI	NI
Alternative 2: Partially Connected System	NI	NI	NI	NI
Alternative 3: Fully Connected System	NI	NI	NI	NI

TABLE 3.15-11 (Continued)
POTENTIAL IMPACTS AND SIGNIFICANCE – ENVIRONMENTAL JUSTICE

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
Impact 3.15.4: Disproportionate impacts to farm workers.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	NI	NI	NI	NI
Alternative 1: Basic System	NI	NI	NI	NI
Alternative 2: Partially Connected System	NI	NI	NI	NI
Alternative 3: Fully Connected System	NI	NI	NI	NI

NI = No (Environmental Justice) Impact

3.15.5 References

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3.16 Socioeconomics

This section presents the socioeconomic conditions in the action area and assesses effects on the economy from implementation of the North Bay Water Recycling Program (NBWRP), including project construction; operation and maintenance; increased vineyard production and costs; increased recreational expenditures; and potential changes in customer water and sewer fees. Economic indicators to assess effects include total output, jobs, and wages and salaries. The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

3.16.1 Affected Environment/Setting

Socioeconomic data is typically available at the county and city levels; therefore, Marin, Sonoma, and Napa County data are presented along with city level data for the Cities of Novato, San Rafael, Sonoma, and Napa. The most current data for the Counties are for year 2006, and the most current data for the Cities are for year 2000.

Population and Employment

LGVSD

Marin County

In 2006, Marin County had a population of approximately 246,000. Total personal income in Marin County was approximately $21 billion and per capita personal income was $86,062 (Bureau of Economic Analysis [BEA], 2007).[1]

Table 3.16-1 shows 2006 industry earnings in Marin County. Top earning industries include professional and technical services, finance and insurance, and health care and social assistance. Table 3.16-1 also shows industry employment in Marin County in 2006. In 2006, professional and technical services employed the most people, followed by retail trade, and health care and social assistance. The unemployment rate in Marin County in 2006 was 3.5 percent, well below the state average of 4.9 percent (Economic Development Department [EDD], 2008a).

Table 3.16-2 shows employment in Novato and San Rafael by industry from the 2000 U.S. Census. In 2000, the largest industries by employment in both Novato and San Rafael were education, health and social services; professional, scientific, management, administrative, and waste management; and retail trade.

[1] Personal income is the income received by persons from all sources. It is calculated as the sum of wage and salary disbursements, supplements to wages and salaries, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance. Per capita personal income is calculated as the personal income of the residents of a given area divided by the resident population of the area. In computing per capita personal income, BEA uses the Census Bureau's annual midyear population estimates.

TABLE 3.16-1
INDUSTRY EARNINGS AND INDUSTRY EMPLOYMENT, MARIN COUNTY, 2006

Industry	Earnings (thousands $)	Employment (jobs)
Forestry, fishing, related activities, and other	(D)	(D)
Mining	(D)	(D)
Utilities	$27,345	251
Construction	$829,108	12,149
Manufacturing	$153,173	3,351
Wholesale trade	$289,828	4,322
Retail trade	$728,402	18,145
Transportation and warehousing	$76,635	1,546
Information	$364,999	3,973
Finance and insurance	$1,274,884	12,202
Real estate and rental and leasing	$512,873	14,634
Professional and technical services	$1,825,604	26,769
Management of companies and enterprises	$374,851	2,423
Administrative and waste services	$395,858	10,090
Educational services	$153,962	5,369
Health care and social assistance	$1,083,389	17,988
Arts, entertainment, and recreation	$178,918	7,469
Accommodation and food services	$277,147	11,598
Other services, except public administration	$358,139	12,904
Government and government enterprises	$971,066	14,412
Total	**$9,911,005**	**181,103**

(D) BEA Note - Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

SOURCE: BEA 2007, Regional Economic Information System

TABLE 3.16-2
SAN RAFAEL AND NOVATO EMPLOYMENT BY INDUSTRY, 2000

	Novato		San Rafael	
Industry	Number of Jobs	Percent of All Industries	Number of Jobs	Percent of All Industries
Agriculture, Forestry, Fisheries, and Mining	62	0.2	86	0.3
Construction	1,745	7.0	2,271	7.8
Manufacturing	1,122	4.5	1,427	4.9
Wholesale Trade	820	3.3	994	3.4
Retail trade	3,225	13.0	3,264	11.2
Transportation, warehousing, utilities	834	3.4	749	2.6
Information	1,067	4.3	1,391	4.8
Finance, Insurance, Real Estate	2,811	11.3	2,925	10.1
Professional, scientific, management, administrative, waste management	4,054	16.3	5,662	19.5
Education, health, and social services	4,471	18.0	4,993	17.2
Arts, entertainment, recreation, accommodation, and food service	1,994	8.0	2,624	9.0
Other services	1,510	6.1	1,835	6.3
Public administration	1,158	4.7	855	2.9
Total	**24,873**	**--**	**29,076**	**--**

SOURCE: U.S. Census Bureau 2000a, U.S. Census Bureau 2000b

SVCSD

Sonoma County

In 2006, Sonoma County had a population of approximately 463,000. Total personal income in Sonoma County was approximately $20 billion and per capita personal income was $43,318 (BEA, 2007).

Table 3.16-3 shows 2006 industry earnings in Sonoma County. Top earning industries were manufacturing, government and government enterprises, and construction. Table 3.16-3 also shows industry employment in Sonoma County in 2006. In 2006, retail trade employed the most people, followed by government and government enterprises, health care and social assistance, and manufacturing. The unemployment rate in Sonoma County in 2006 was 4.0 percent, which was below the state average of 4.9 percent (EDD, 2008c).

TABLE 3.16-3
INDUSTRY EARNINGS AND INDUSTRY EMPLOYMENT, SONOMA COUNTY, 2006

Industry	Earnings (thousands $)	Employment (jobs)
Forestry, fishing, related activities, and other	$69,047	2,425
Mining	$28,392	383
Utilities	(D)	(D)
Construction	$1,452,024	22,754
Manufacturing	$1,789,701	25,629
Wholesale trade	$597,731	9,585
Retail trade	$992,482	30,366
Transportation and warehousing	(D)	(D)
Information	$283,817	4,672
Finance and insurance	$654,237	11,172
Real estate and rental and leasing	$413,931	15,931
Professional and technical services	$1,267,229	23,856
Management of companies and enterprises	$105,575	1,711
Administrative and waste services	$441,315	14,011
Educational services	$81,338	4,415
Health care and social assistance	$1,390,735	26,352
Arts, entertainment, and recreation	$124,223	7,675
Accommodation and food services	$398,326	19,481
Other services, except public administration	$413,000	16,187
Government and government enterprises	$1,752,390	29,644
Total	$12,664,838	277,955

(D) BEA Note - Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

SOURCE: BEA, 2007

Table 3.16-4 shows City of Sonoma employment by industry from the 2000 U.S. Census. In 2000, the largest industries by employment in Sonoma were education, health and social services; retail trade; and professional, scientific, management, administrative, and waste management.

TABLE 3.16-4
CITY OF SONOMA EMPLOYMENT BY INDUSTRY, 2000

Industry	Sonoma	
	Number of Jobs	Percent of All Industries
Agriculture, Forestry, Fisheries, and Mining	36	0.8
Construction	258	6.0
Manufacturing	347	8.0
Wholesale Trade	190	4.4
Retail trade	577	13.4
Transportation, warehousing, utilities	240	5.6
Information	135	3.1
Finance, Insurance, Real Estate	358	8.3
Professional, scientific, management, administrative, waste management	487	11.3
Education, health, and social services	907	21.0
Arts, entertainment, recreation, accommodation, and food service	345	8.0
Other services	292	6.8
Public administration	145	3.4
Total	**4,317**	--

SOURCE: U.S. Census Bureau, 2000d

Napa SD

Napa County

In 2006, Napa County had a population of approximately 131,000. Total personal income in Napa County was approximately $6.2 billion and per capita personal income was $47,491 (BEA, 2007). **Table 3.16-5** shows 2006 industry earnings in Napa County. Top earning industries were manufacturing, government and government enterprises, and construction. Table 3.16-5 also shows industry employment in Napa County in 2006. In 2006, manufacturing employed the most people, followed by government and government enterprises, and accommodation and food services. The unemployment rate in Napa County in 2006 was 3.9 percent, which was below the state average of 4.9 percent (EDD, 2008b).

Table 3.16-6 shows city of Napa employment by industry from the 2000 U.S. Census. In 2000, the largest industries by employment in Napa were education, health and social services; manufacturing; and retail trade.

Agricultural Economy

This section describes the agricultural economy in Sonoma and Napa Counties. Marin County has limited agriculture, which would not be affected by the NBWRP; therefore, it is not further discussed in this section. The primary agricultural land uses in the action area in southern Sonoma and Napa Counties are vineyards and dairies.

TABLE 3.16-5
INDUSTRY EARNINGS AND INDUSTRY EMPLOYMENT, NAPA COUNTY, 2006

Industry	Earnings (thousands $)	Employment (jobs)
Forestry, fishing, related activities, and other (D)	$89,578	2,657
Mining	$7,877	127
Utilities	$14,916	170
Construction	$464,752	6,922
Manufacturing	$933,718	11,663
Wholesale trade	$119,278	2,039
Retail trade	$253,977	7,861
Transportation and warehousing	$94,428	1,575
Information	$66,510	944
Finance and insurance	$184,233	2,777
Real estate and rental and leasing	$116,446	5,322
Professional and technical services	$259,608	4,982
Management of companies and enterprises	$16,116	302
Administrative and waste services	$165,216	5,030
Educational services	$56,039	1,814
Health care and social assistance	$419,210	7,520
Arts, entertainment, and recreation	$30,782	1,743
Accommodation and food services	$233,848	8,345
Other services, except public administration	$121,021	4,560
Government and government enterprises	$616,592	9,941
Total	**$4,419,358**	**89,677**

(D) BEA Note - Some subcategories not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

SOURCE: BEA 2007, Regional Economic Information System

TABLE 3.16-6
CITY OF NAPA EMPLOYMENT BY INDUSTRY, 2000

	Napa	
Industry	**Number of Jobs**	**Percent of All Industries**
Agriculture, Forestry, Fisheries, and Mining	1,185	3.4
Construction	2,552	7.4
Manufacturing	4,882	14.2
Wholesale Trade	1,125	3.3
Retail trade	4,072	11.8
Transportation, warehousing, utilities	1,024	3.0
Information	723	2.1
Finance, Insurance, Real Estate	1,905	5.5
Professional, scientific, management, administrative, waste management	3,054	8.9
Education, health, and social services	6,977	20.3
Arts, entertainment, recreation, accommodation, and food service	3,559	10.4
Other services	1,683	4.9
Public administration	1,640	4.8
Total	**35,996**	**--**

SOURCE: U.S. Census Bureau 2000c

SVCSD and Napa SD

Total gross value of agricultural production in 2007 in Sonoma County was approximately $639.1 million, representing a 7.6 percent increase from the 2006 value of $593.9 million. Total gross value of production of wine grapes in 2007 was approximately $416.5 million in Sonoma County, which was the highest in crop and nursery value of production in the County. In 2007,total wine grape bearing acreage was 54,862 acres and non-bearing acreage was 6,030 acres. The weighted average production value for wine grapes was $2,081 per ton. Market milk had the second highest value of production in Sonoma County, at approximately $98.7 million. Oat hay was planted on 4,470 acres in 2007 and yielded approximately 11,440 tons. Total value of production for oat hay was approximately $1.5 million (Sonoma County, 2008a).

Total gross value of agricultural production in 2007 in Napa County was approximately $484.9 million, representing a 1.4 percent increase from the 2006 value of $477.9 million. Wine grapes had the highest gross value of production of all crops and livestock in Napa County, approximately $473.5 million. In 2007, total wine grape bearing acreage was 42,338 acres and non-bearing acreage was 2,820 acres. The weighted average production value per ton for wine grapes was $3,257 per ton. Livestock has the second highest value, at approximately $3.4 million in 2007 (Napa County, 2008a).

The costs to establish and produce wine grapes for Chardonnay in Sonoma County in 2004 ranged from $1,440 per ton to $4,302 per ton depending on the yield per acre. Yields can range from 3 to 9 tons per acre (UCCE, 2004). The average value of wine grapes for white varietals in Sonoma County was $1,679 per ton in 2006 and $1,805 per ton in 2007 (Sonoma County, 2008a).

The costs to establish and produce wine grapes for Cabernet Sauvignon in Napa County in 2003 ranged from $2,648 per ton to $4,797 per ton depending on the yield per acre. Yields can range from 3.5 to 6.5 tons per acre (UCCE, 2003). The average value of wine grapes for red varietals in Napa County was $3,451 per ton in 2006 and $3,640 per ton in 2007 (Napa County, 2008a).

In addition to contributing to the counties' agricultural economies, wine grape production attracts a significant number of visitors to Napa and Sonoma Counties to support the tourism industry, which provide major revenues and jobs to the counties. A 2007 visitor survey indicated that winery visits were the main motivation for approximately 90 percent of hotel guests to visit Sonoma County and wine country maps ranked second as an influence for the decision to visit Sonoma County. The total amount spent by visitors to Sonoma County in 2006 was $1.32 billion (Sonoma County Economic Development Board, 2008).

The amount spent by visitors to Napa County in 2005 reached almost $1 billion. Most visitors cited wineries as their primary reason to visit and 77 percent of all visitors surveyed visited a winery on their trip (Leadership Napa Valley Class XVII Tourism Practicum Group, 2006).

3.16.2 Regulatory Framework

The policies and regulations associated with impacts to socioeconomics within the affected jurisdictions are presented in **Appendix 3.16** of this EIR/EIS.

3.16.3 Environmental Consequences/ Impacts Analysis

NEPA Analysis

Under NEPA, economic or social effects must be discussed if they are inter-related to the natural or physical environmental effects of a project. NEPA states the following with regard to analysis of economic effects (Title 40, Code of Federal Regulations, Section 1508.14):

> "…economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment."

Since economic effects of the project are related to physical environmental effects, a NEPA economic analysis is required. However, NEPA does not require that economic impacts be judged for significance.

Significance Criteria under CEQA

CEQA does not consider economic or social changes resulting from a project as adverse effects on the environment. If a physical change in the environment is caused by economic or social effects, the physical change may be regarded as an adverse effect. Specifically, under the CEQA guidelines (Section 15358[b]), an EIR must analyze impacts "related to physical changes" in the environment. CEQA guidelines Section 15131(a) states that "economic or social effects of a project shall not be treated as significant effects on the environment" unless the economic effects results in physical effects.

The guidelines also state that "An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by economic or social changes. The intermediate economic or social changes caused need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis should be on physical changes."

In other words, the economic or social effect of a project may be used to determine the significance of physical changes caused by the project. However, analyses of other environmental resources in this document rely on resource specific tools or qualitative discussions to determine environmental effects. Therefore, economic effects are not needed to judge the significance of changes to other environmental resources.

Physical effects of the project alternatives are evaluated separately and do not require economic analysis; therefore, this section does not provide a CEQA analysis and associated significance

criteria. However, this section does provide an analysis of economic effects for NEPA compliance. NEPA economic impacts are typically derived by comparing the No Action Alternative to the action alternatives.

Environmental Consequences/Impact Analysis

Impact 3.16.1: Output in Regional Economy. Project construction and operation would increase jobs, wages and salaries, and output in the regional economy. (Less than Significant)

For the purpose of this analysis, the regional economy includes Marin, Napa, and Sonoma Counties.

Construction activities would create jobs and generate additional economic activity within the region during the period of construction. Regional economic effects are generally characterized as direct effects and secondary effects and occur because of linkages between industries. Any given industry typically purchases goods and services from, and sells goods and services to, another industry within a given geographic area, which in turn, sells to or buys from other industries or supplies final consumers. Direct effects represent the changes in final demand in a single sector, or, in this case, the purchase of materials to construct pipelines, pump stations, treatment plant upgrades, and storage reservoirs. Secondary effects are the changes in demand in industries supplying goods and services and changes in expenditures of household income.

These industry linkages are estimated by economic multipliers (e.g., a multiplier of 2.0 indicates that each dollar of direct sale generates another dollar of secondary sales in the regional economy; a multiplier of 3.0 indicates that each dollar of direct sale generates an additional $2 of secondary sales in the regional economy, and so on). The analysis uses multipliers from IMPLAN (Impact Planning and Analysis), an input-output database and modeling software commonly used to estimate regional effects.

No Project Alternative

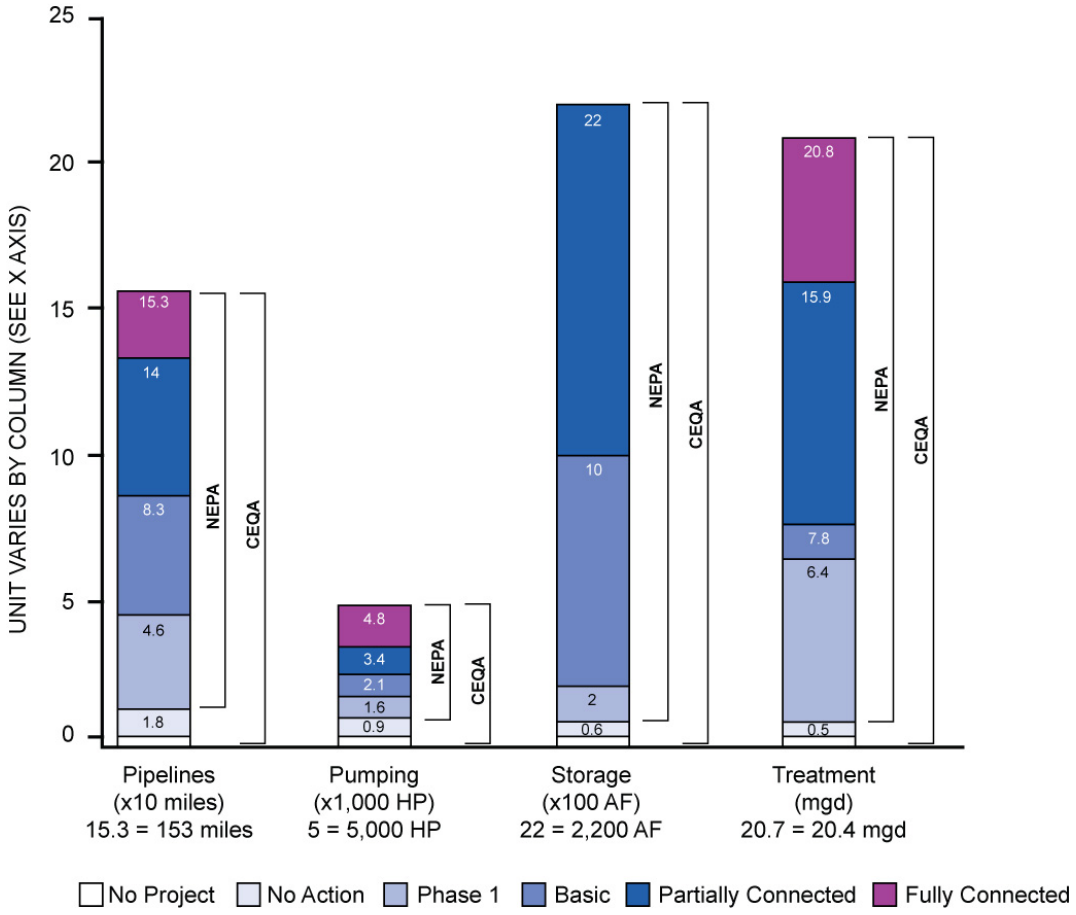
No project facilities would be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Relative to existing conditions, construction under the No Action Alternative would generate some economic activity by creating temporary construction jobs and increased spending on project materials. Since no costs have been developed for this alternative, the economic effects were not quantified in dollars through use of IMPLAN multipliers. Implementation of this alternative would result in beneficial, but minor, impacts to the regional economy relative to the existing conditions.

In comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.16-1, No Action**).

CHART 3.16-1
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

Under future baseline (2020) conditions, the socioeconomic conditions are anticipated to change in accordance with anticipated development allowed under the approved General Plans within the region.

Phase 1 (Project level)

Compared to the No Project Alternative (CEQA Baseline) Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline),

Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts on the regional economy related to project construction and operation under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Phase 1 includes construction of treatment plant upgrades, pipelines, pump stations, and storage reservoirs, which requires the purchase of construction materials and employment of engineers, construction supervisors, and general construction laborers. These activities would result in economic effects, or increases in jobs, wages and salaries, and economic output in the regional economy. **Table 3.16-7** summarizes preliminary capital costs for the NBWRP. If materials are purchased within the action area, economic output would increase. Materials purchased outside the action area would not result in economic benefits to the action area.

TABLE 3.16-7
OPINION OF PROBABLE TOTAL PROJECT CAPITAL COSTS FOR IMPLEMENTATION PHASE 1

Major Project Component	Cost ($ million)
Pipelines	$89.3
Treatment Improvements	$14.9
Storage Facilities	$8.3
Pumping Facilities	$8.5
Probable Total Project Capital Costs	***$121.0***

SOURCE: CDM, 2008

The IMPLAN multiplier for total output in the water, sewer, and pipeline construction sector for the three counties was approximately 1.6 (MIG, Inc., 2002). Therefore, for every dollar spent in the sector, $0.60 would be gained in the total regional economy in secondary effects. The Marin, Sonoma, and Napa Counties do not have large wholesale trade sectors relative to nearby counties, including Alameda, Contra Costa, Sacramento, and San Francisco Counties, which could result in more material purchases outside of the region. For example, if 60 percent of materials are purchased outside the region, direct effects to the region would be approximately $48.4 million and secondary effects would be approximately $29.0 million.

The workers employed by the project would earn wages and salaries and would likely spend a portion of wages and salaries within the action area. Workers employed within the action area would generate greater regional economic benefits than workers from outside the action area because these “outside” workers would take their incomes out of the action area and likely increase spending in a different region. Marin, Napa, and Sonoma Counties would likely supply a portion of the workers for the project and others would originate in the greater Bay Area region or Sacramento region. **Table 3.16-8** summarizes hourly wages for employment for construction laborers and supervisors in Marin, Napa, and Sonoma Counties. Construction details for the

TABLE 3.16-8
CONSTRUCTION LABORERS AND SUPERVISORS HOURLY WAGES

	Construction Laborers ($/hour)	Construction Trades Supervisors ($/hour)
Marin County (San Francisco – San Mateo – Redwood City Metro MSA)	$23.24	$41.08
Napa County (Napa MSA)	$19.07	$34.04
Sonoma County (Santa Rosa – Petaluma MSA)	$20.56	$36.71

MSA = Metropolitan Statistic Areas

SOURCE: EDD, 2008d

NBWRP, including number of workers needed and construction schedule, have not been identified; therefore, the direct economic effects of project construction cannot be calculated for this analysis. In a 40-hour work week, construction laborers would earn between $762 and $929 and supervisors would earn between $1,361 and $1,643, depending on the MSA. Construction details for the NBWRP, including number of workers needed and construction schedule, have not been identified; therefore, the direct economic effects of project construction cannot be calculated for this analysis. It can be assumed that a portion of these weekly wages would be spent on goods and services in the action area, which would result in regional economic benefits.

The regional economic effects, using existing conditions as a baseline, would represent a temporary economic benefit to the region and would end when construction is complete. Beneficial impacts would be lower relative to the No Action Alternative because some level of construction would occur under the No Action Alternative, which would result in some regional economic effects.

Similar to the construction activities, project operation would result in regional economic effects. These effects would be long-term, but much smaller in magnitude than the economic effects from construction. Total annual operation and maintenance costs under Phase 1 are estimated at approximately $1.3 million, which would primarily be associated with power requirements. Current employees would be involved in operation and maintenance, therefore the expenditures would likely not create additional jobs in the region. The regional economic effects from operational expenditures would be beneficial, but minor.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to the regional economy related to project construction and operation under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion

to the facilities constructed under this alternative. However, the regional benefits from construction of the Basic System would be greater than under Phase 1 because the Basic System includes additional recycled water use beyond that proposed under Phase 1. The Basic System would likely require additional construction workers and involve a longer construction schedule. **Table 3.16-9** shows the capital costs of the Basic System. Regional economic impacts would benefit the local region and would only occur during the construction period. (e.g., if 60 percent of materials are purchased outside the region, direct effects to the region would be approximately $84.0 million and secondary effects would be approximately $50.4 million). The economic effects of additional construction workers or worker days relative to Phase 1 would likely be low.

TABLE 3.16-9
PROBABLE TOTAL PROJECT CAPITAL COSTS FOR THE BASIC SYSTEM

Major Project Component	Cost ($ Million)
Pipelines	$129.6
Treatment Improvements	$29.6
Storage Facilities	$40.6
Pumping Facilities	$10.1
Probable Total Project Capital Costs	***$209.9***

SOURCE: CDM, 2008

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to the regional economy related to project construction and operation under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. However, the regional benefits would be greater than the Basic System. Therefore, it would likely require more construction workers and/or a longer construction schedule. Regional economic impacts would benefit the local region and would only occur during the construction period. **Table 3.16-10** shows the capital costs of the Partially Connected System. If 60 percent of materials are purchased outside the region, direct effects to the region would be approximately $151 million and secondary effects would be approximately $90.6 million. This alternative may employ more workers relative to the Basic System; however, the economic benefits of additional construction workers or worker days would likely be minor.

TABLE 3.16-10
PROBABLE TOTAL PROJECT CAPITAL COSTS
FOR THE PARTIALLY CONNECTED SYSTEM

Major Project Component	Cost ($ million)
Pipelines	$198.0
Treatment Improvements	$64.7
Storage Facilities	$98.6
Pumping Facilities	$16.2
Probable Total Project Capital Costs	***$377.5***

SOURCE: CDM, 2008

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts related to project construction and operation under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative except for the additional regional benefits from construction of the additional recycled water facilities beyond those under the Partially Connected System. The Fully Connected System would likely require more construction workers and/or a longer construction schedule. Regional economic impacts would benefit the local region and would only occur during the construction period. **Table 3.16-11** shows the capital costs of the Fully Connected System. If 60 percent of materials are purchased outside the region, direct effects to the region would be approximately $165.6 million and secondary effects would be approximately $99.3 million. This alternative may employ more workers relative to the Partially Connected System; however, the economic benefits of additional construction workers or worker days would likely be small.

TABLE 3.16-11
PROBABLE TOTAL PROJECT CAPITAL COSTS
FOR THE FULLY CONNECTED SYSTEM

Major Project Component	Cost ($ millions)
Pipelines	$216.7
Treatment Improvements	$85.2
Storage Facilities	$90.7
Pumping Facilities	$21.4
Probable Total Project Capital Costs	***$414.0***

SOURCE: CDM, 2008

Impact 3.16.2: Effect on Agricultural Economy. Project implementation could affect the agricultural economy. (Beneficial)

The NBWRP could affect the agricultural economy by changing production costs or irrigated acreages. The effects would be long term in nature. The greater costs associated with the recycled water could decrease net farm incomes and would have an adverse effect to the farmers. Establishment and production of new vineyards would result in beneficial regional economic effects. Businesses trade with farmers; farmers buy goods and services from farm stores, equipment supply stores, custom operators, and other farmers; other regional businesses earn their income by transporting, storing, marketing, and processing agricultural products. Increased vineyards would increase the volume of sales for the businesses.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.16-1, No Action**).

Under the No Action Alternative, agricultural production would remain the same as existing conditions. Farmers would continue following similar cropping patterns and irrigating with groundwater or surface water supplies. Under the No Action Alternative, farmers would potentially utilize the recycled water provided by the local recycled water projects in Novato, Sonoma, and Napa. As a result, agricultural production costs for the farmers could increase. Participation of the farmers in local recycled water projects would be voluntary; farmers would only likely participate if recycled water use were cost-effective. Recycled water would be a more reliable water supply than existing groundwater or surface water supplies, which may make increased production costs more cost effective in the long-term. The agricultural economy under the No Action Alternative would be similar to existing conditions.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects

would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts on the agricultural economy under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under Phase 1, farmers would use recycled water instead of groundwater or surface water for irrigation purposes. Recycled water supplies may be more expensive to farmers than existing groundwater or surface water supplies; however, recycled water supplies would be more reliable and could support long-term agricultural production and farm income.

It generally takes vineyards approximately 3 years to bear fruit and 5 years to reach maturity; however, costs are incurred in the first year (UCCE, 2003). Farmers may not make a profit until the vines reach maturity in five to six years. If water costs increase, farmers producing marginal vineyards may not make a profit if other conditions (i.e., sale price) remain the same. This would be an adverse effect to the agricultural economy. However, participation by farmers in the recycled water program would be voluntary. It can be assumed that farmers would not participate if use of recycled water would not be cost-effective for them in the long-term.

Irrigated acreage of vineyards could increase under the NBWRP as a result of providing recycled water supply. Based on the existing nature and location of land uses in the action area within Sonoma County and the assumed use of recycled water, it is not expected that recycled water deliveries would change acreages of vineyards in Sonoma County relative to the No Project Alternative. Farmers would continue to plant the same acreage under the No Action Alternative. However, in Napa County, recycled water deliveries to the MST area would increase vineyard production relative to the No Project/No Action Alternative. In light of the existing nature and location of land uses in the action area within Napa County, and the assumed use of recycled water, it is estimated that approximately 2,086 acres of new vineyards would be planted as a result of the NBWRP.[2] This would increase spending in the agricultural economy and increase farm incomes (Please refer to Chapter 5, for impacts related to growth**)**.

Establishing vineyards requires farmers to spend money on vines, trellis and irrigation systems, fertilizer, and other production inputs and hire workers for site preparation, planting, and pruning vines. The three-year establishment cost for Cabernet Sauvignon vineyards in Napa County was $26,579 per acre, including labor, fuel, materials, and overhead costs (UCCE, 2003). When the vines begin to produce fruits, farmers would continue expenses on production inputs and employing workers, which would increase regional economic benefits. The total production costs ranged from $4,797 to $2,648 per ton based on increasing crop yields from 3.5 to 6.5 tons. Labor requirements were approximately 80 full time workers per 1,000 acres (UCCE, 2003). Establishment and production of vineyards would benefit the regional economy by increasing sales for agricultural support industries and increasing employment for farm workers.

[2] It is assumed that this land is currently idle. If the land is producing another crop, economic benefits would be the net farm income.

Farmers would receive revenues from the sale of the crop. Sale prices vary based on market conditions. In 2007, Napa County reported average sales for red grape varietals of $3,640 per ton. Based on this price and UCCE cost estimates, profits would range from $1,188 per ton for a yield of 5 tons per acre to $6,434 per tons for a yield of 6.5 tons per acre. The economic benefits would occur at a regional level as farmers spend a portion of increased net household income in the local economy.

Increased spending, employment, and farm incomes relative to the No Action Alternative would be a beneficial impact to the agricultural economy.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts on the agricultural economy under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. The Basic System would serve only existing vineyards and there would be no new vineyard production above that identified for Phase 1 (i.e., it is anticipated that existing opportunities for the planting of new vineyards based on the availability of recycled water would be largely, if not fully, realized under Phase 1; additional recycled water deliveries above and beyond Phase 1 are not expected to result in further establishment of new vineyards to any notable degree).

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts on the agricultural community under the Partially Connected System would be equivalent the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. Any additional vineyards served by the Partially Connected System would be existing vineyards and there would be no new vineyard production above that identified for Phase 1.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully

Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts on the agricultural community under the Fully Connected System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. Any additional vineyards served by the Fully Connected System 3 would be existing vineyards and there would be no new vineyard production above that identified for Phase 1.

Impact 3.16.3: Impact to Winery-related Industry. Recycled water deliveries to vineyards would support the winery-related tourism industry. (Beneficial)

No Project Alternative

No new vineyard production would occur under the No Project Alternative. The winery-related tourism industry would continue to attract a similar number of visitors and generated similar economic activity as existing conditions. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.16-1, No Action**).

Under future baseline (2020) conditions, recycled water use within the region is anticipated to increase, in accordance with local water supply or management plans and anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

No new vineyard production would occur under the No Action Alternative. The winery-related tourism industry would continue to attract a similar number of visitors and generated similar economic activity as existing conditions.

Phase 1 (Project level)

Compared to the CEQA Baseline Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would

provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to the winery-related tourism industry under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

The NBWRP would result in approximately 2,086 acres of new vineyards in Napa County. Increased grape production would support the winery-related tourism industry in Napa County, which generates over a $1 billion a year. The increased acreage may not have a direct effect on tourism by attracting visitors to the new vineyards, however it would help maintain vineyards in Napa County and continue to attract visitors to the region. This impact would be minor, but beneficial (Please refer to Chapter 5, for impacts related to growth**)**.

Recycled water deliveries would provide a more reliable water supply for irrigation of existing vineyards in both Napa and Sonoma Counties. A reliable water supply helps maintain vineyard production in the long-term, which would also provide long-term support for the tourism industry.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to the winery-related tourism industry under the Basic System would be equivalent to the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. The Basic System would serve only existing vineyards and there would be no new vineyard production above that identified for Phase 1.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to the winery-related tourist industry under the Partially Connected System would be equivalent to the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. The Partially Connected System would extend service only to existing vineyards and there would be no new vineyard production above that identified for Phase 1.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. The Partially Connected System would extend service only to existing vineyards and there would be no new vineyard production above that identified for Phase 1.

Impact 3.16.4: Increase in water/sewer charges. Project implementation could increase municipal and industrial customer water or sewer charges. (Less than Significant)

The funding mechanisms for the project that are being considered by the member agencies include applying for state and federal loans and/or grants. The NBWRA would repay any loans acquired through charging a fee to users for recycled water supply. The project costs would thus affect the user fees, however the extent of increase is not known at this time. It is assumed that customer fees would increase as the project costs increase.

No Project Alternative

Under the No Project Alterative, the existing water and sewer fees would likely remain the same as under existing conditions. No impact is expected. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.16-1, No Action**).

Under future baseline (2020) conditions, municipal and industrial customer water/sewer charges within the region are anticipated to increase and would occur in accordance with anticipated development allowed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

Under the No Action Alternative, the existing water and sewer fees would likely increase as Novato SD, SVCSD, and Napa SD would implement local recycling projects and need to finance debts.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts on water and sewer fees under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. Table 3.16-10 shows the potential costs for the member agencies for construction and operation of the project. A firm plan for funding the of Phase 1 construction costs has not yet been developed among the four wastewater districts and their potential partners. **Table 3.16-12** shows the anticipated costs (life cycle costs)[3] analysis for Phase 1 for each Member Agency.

TABLE 3.16-12
ANTICIPATED COSTS FOR PHASE 1 BY MEMBER AGENCIES

	LGVSD	Novato SD	SVCSD	Napa SD	Total
Total Capital Costs	$7,941,000	$20,041,000	$56,213,000	$36,806,000	$121,000,000
Annual Capital Costs	$308,631	$778,903	$2,184,746	$1,430,483	$4,702,725
Annual O&M Costs	$114,000	$345,000	$346,000	$576,000	$1,381,000
Total Annual Costs	$422,631	$1,123,903	$2,530,746	$2,006,483	$6,083,725

SOURCE: CDM, 2008

Total annual costs of implementing Phase 1 would be approximately $6.1 million, based on a 50-year period of analysis and 3 percent real discount rate. As discussed in Chapter 2, Project Description, NBWRA is in the process of applying for federal funding through the Bureau of Reclamation's Title XVI Water Reclamation and Reuse Program for $25 million. Each individual agency would be responsible for their non-federal share. NMWD is a potential partner for sharing in costs allocated to LGVSD and Novato SD. Costs allocated to SVCSD could be shared by SCWA, the City of Sonoma, and Valley of the Moon Water District. Napa SD costs may be shared by Napa County. There are several possible funding sources being considered by the wastewater districts and potable water agencies for their non-federal share of construction costs. Funding sources include user funding for capital improvements, contribution from agency reserves, state or local grants,

[3] The life cycle costs analysis calculates annual capital costs of implementation over a 50-year period of analysis using a 3 percent real discount rate and adds annual operation and maintenance costs. All facilities are expected to have a service life of at least 50 years with proper maintenance; costs incurred after 50 years would be significantly discounted and were not considered in this analysis. Use of a real (inflation–adjusted) discount rate alleviates the need to project future cost levels.

loans in the form of Certificates of Participation or the State Revolving Fund. Any construction funds not covered by user funding, district reserves, grants, or loans would probably be raised through issuance of revenue bonds. For some Member Agencies and/ or Participating Agencies, it is possible that the final funding plan would include some combination of the above measures.

It is expected that any debt instruments (e.g., loans and bonds) acquired to fund construction would be repaid primarily through user fees, both for wastewater service and for recycled water supply deliveries. For some Member Agencies and/ or Participating Agencies, it is possible that the rates for all users in the wastewater and water agency service areas, not just the users receiving the recycled water supply, could be raised for debt service for this project. In addition, tax assessments could be used by some Member Agencies and/ or Participating Agencies, to retire project debt, although assessments are not now a large portion of agency revenues. The annual operational expenses for Phase 1 may be collected in the same manner as the annual debt service.

Because the exact funding mechanisms are not known, it is difficult to evaluate potential changes in customers' water and sewer fees. While it can be generally concluded that increased water and sewer fees would have an adverse effect to disposable personal income of customers in the three counties relative to the No Project/No Action Alternative, it would be speculative at this time to assess the extent to which customers may be financially affected. However, the use of recycled water may have a beneficial effect on future water and sewer fees by postponing fee increases for development of other water sources. The agencies are continuing to pursue additional outside funding mechanisms, and the portion of total project cost to be borne by rate payers is unknown at this time. Any potential environmental justice effects on low-income populations are discussed in **Section 3.15, Environmental Justice**.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts on water and sewer fees under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. **Table 3.16-13** shows the total costs analysis for the Basic System.

TABLE 3.16-13
ANTICIPATED TOTAL COSTS FOR THE BASIC SYSTEM

Total Capital Costs	$210,000,000
Annual Capital Costs	$8,161,754
Annual O&M Costs	$1,824,000
Total Annual Costs	$9,985,754

SOURCE: CDM, 2008

Potential cost shares for the member agencies have not been developed at the project-level. The options available for funding the Basic System are the same as described in Phase 1. Based on a 50-year period of analysis and 3 percent real discount rate, the total annual implementation costs including capital and operation and maintenance would be approximately $10 million. Depending on how the project is funded, water and sewer fees may increase even more than identified above, relative to the No Project and No Action Alternatives and Phase 1 because the Basic System would be comparatively more expensive to implement. As described above, it can be generally concluded that any increase in water and sewer fees would have an adverse impact on the disposable income of customers, but it is speculative at this time to estimate the extent of such an impact. However, the use of recycled water may have a beneficial effect on future water and sewer fees by postponing fee increases for development of other water sources.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.5 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts on water and sewer fees under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. **Table 3.16-14** shows the life cycle costs analysis for the Partially Connected System.

TABLE 3.16-14
ANTICIPATED TOTAL COSTS FOR THE PARTIALLY CONNECTED SYSTEM

Total Capital Costs	$377,500,000
Annual Costs	$14,671,724
Annual O&M Costs	$2,789,000
Total Annual Costs	$17,460,724

SOURCE: CDM, 2008

Potential cost shares for the member agencies have not been developed at the project-level. The options available for funding the Partially Connected System are the same as described in Phase 1. Based on a 50-year period of analysis and 3 percent real discount rate, the total annual implementation costs would be approximately $17.5 million. Depending on how the project is funded, water and sewer fees may increase even more than under the No Project/No Action Alternative, Phase 1 and the Basic System because Partially Connected System would be comparatively more expensive to implement. As described above, it can be generally concluded that any increase in water and sewer fees would have an adverse impact on the disposable income of customers, but it is speculative at this time to estimate the extent of such an impact. However, the use of recycled water may have a beneficial effect on future water and sewer fees by postponing fee increases for development of other water sources.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts on water and sewer fees under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. **Table 3.16-15** shows the life cycle costs analysis for the Fully Connected System.

TABLE 3.16-15
LIFE CYCLE COST ANALYSIS FOR THE FULLY CONNECTED SYSTEM

Total Capital Costs	$414,000,000
Annual Costs	$16,090,315
Annual O&M Costs	$3,067,000
Total Annual Costs	$19,157,315

SOURCE: SCWA and Reclamation 2008

Potential cost shares for the member agencies have not been developed at the project-level. The options available for funding the Fully Connected System are the same as described in Phase 1. Based on a 50-year period of analysis and 3 percent real discount rate, the total annual implementation costs would be approximately $19.2 million. Depending on how the project is funded, water and sewer fees may increase even more than under Phase 1, the Basic System, and the Partially Recycled System because the Fully Connected System would be comparatively more expensive to implement. As described above, it can be generally concluded that any increase in water and sewer fees would have an adverse impact on the disposable income of customers, but it is speculative at this time to estimate the extent of such an impact. As a basis of comparison between alternatives, notwithstanding that funding plans have not been formulated for any of the alternatives, the Fully Connected System has the potential for the greatest adverse impact to disposable incomes because it is the most expensive of all the alternatives. However, the use of recycled water may have a beneficial effect on future water and sewer fees by postponing fee increases for development of other water sources.

Impact 3.16.5: Impact on Recreational Spending. Recycled water deliveries to the Napa Salt Mash Restoration Area could increase recreational spending in the region. (Beneficial)

No Project Alternative

No project would be implemented under the No Project Alternative, therefore no impact is expected. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.16-1, No Action**).

Under future baseline (2020) conditions, recreational spending within the region could increase, in accordance with anticipated development allowed or recreational resources developed under the approved General Plans within the region. A discussion of individual Member Agencies is provided below.

LGVSD/NMWD, Novato SD/NMWD, and Napa SD

Recreational spending within the LGVSD, Novato SD, and the SVCSD would not likely change under the No Action Alternative.

SVCSD

Recreation at the Napa Salt Marsh would not likely change under the No Action Alternative. Recreation activities at the Napa Salt Marsh include hiking, bird watching, fishing, and hunting. The site receives approximately 1,000 visitors annually, of which approximately 60 percent visit for hunting and fishing and 40 percent visit for other nature-related recreation activities (JSA, 2003). Two duck clubs also operate at the Napa Salt Marsh (USACE, 2003). There would be no impact to recreational spending under the No Action Alternative.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to recreational spending under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

The project would deliver a reliable, water supply to the Napa Salt Marsh for restoration purposes via new pipelines from the SVCSD WWTP. During non-peak periods, SVCSD could potentially provide up to 2,362 acre-feet of recycled water to the Napa Salt Marsh. The amount of water required at the Napa Salt Marsh would be determined by SVCSD and appropriate regulatory agencies.

Recycled water deliveries would enhance wildlife and estuarine habitat, which could improve recreational opportunities and attract more visitors to the site. More visitors to the site would likely increase recreation-related spending in the region because visitors may stop to purchase food, picnic supplies, gasoline, or other recreation goods. A U.S. Army Corps Engineers (USACE) study (2003) estimated that visitors within 30 miles of the site spend $11.89 per person on day use, non-boating recreation (USACE, 2003). This increased spending within the regional economy would boost sales and output for local recreation-related businesses, which would be a beneficial impact. This impact would only be an overall increase to the regional economy if visitors from outside the region traveled into the region to visit the site and purchased goods and services within the region. Otherwise, it is assumed that new local visitors are already spending their money elsewhere in the region on other goods and services, which would not result in a net increase in economic output. This analysis does not assume that many new visitors from outside the action area would visit the Napa Salt Marsh as a result of this project. Therefore, this impact would be minor, however beneficial, relative to the No Project/No Action Alternatives.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to recreational spending associated with the Basic System would be generally similar to the impacts discussed above for Phase 1, to the extent that additional recycled water supplies would further enhance wildlife and estuarine habitat and improve recreational and visitor opportunities.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to recreational spending associated with the Partially Connected System would be generally similar to the impacts discussed above for Phase 1, to the extent that additional recycled water supplies would further enhance wildlife and estuarine habitat and improve recreational and visitor opportunities.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully

Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to recreational spending associated with the Fully Connected System would be generally similar to the impacts discussed above for Phase 1, to the extent that additional recycled water supplies would further enhance wildlife and estuarine habitat and improve recreational and visitor opportunities.

3.16.4 Impact Summary by Service Area

Table 3.16-16 provides a summary of potential socioeconomic impacts relative to NEPA associated with implementation of the alternatives.

TABLE 3.16-16
POTENTIAL IMPACTS AND SIGNIFICANCE – SOCIOECONOMICS

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
Impact 3.16.1: Effect on the regional economy.				
No Action Alternative	LTS	LTS	LTS	LTS
Phase 1	BI	BI	BI	BI
Alternative 1: Basic System	BI	BI	BI	BI
Alternative 2: Partially Connected System	BI	BI	BI	BI
Alternative 3: Fully Connected System	BI	BI	BI	BI
Impact 3.16.2: Effect on the agricultural economy.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	NI	NI	NI	BI
Alternative 1: Basic System	NI	NI	NI	BI
Alternative 2: Partially Connected System	NI	NI	NI	BI
Alternative 3: Fully Connected System	NI	NI	NI	BI
Impact 3.16.3: Impact on winery-related industry.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	NI	NI	NI	BI
Alternative 1: Basic System	NI	NI	NI	BI
Alternative 2: Partially Connected System	NI	NI	NI	BI
Alternative 3: Fully Connected System	NI	NI	NI	BI
Impact 3.16.4: Increase in water/sewer charges.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	LTS	LTS	LTS	LTS

TABLE 3.16-16 (Continued)
POTENTIAL IMPACTS AND SIGNIFICANCE – SOCIOECONOMICS

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
Impact 3.16.4: Increase in water/sewer charges. (cont.)				
Alternative 1: Basic System	LTS	LTS	LTS	LTS
Alternative 2: Partially Connected System	LTS	LTS	LTS	LTS
Alternative 3: Fully Connected System	LTS	LTS	LTS	LTS
Impact 3.16.5: Impact on Recreational Spending.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	NI
Phase 1	BI	BI	BI	BI
Alternative 1: Basic System	BI	BI	BI	BI
Alternative 2: Partially Connected System	BI	BI	BI	BI
Alternative 3: Fully Connected System	BI	BI	BI	BI

NI = No Impact
BI = Beneficial Impact
LTS = Less Than Significant

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CHAPTER 4
Cumulative Impacts

4.1 CEQA Analysis Requirements

The National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require the analysis of cumulative impacts. A cumulative impact is created as a result of the combination of the project evaluated in the EIR/EIS together with other projects causing related impacts. NEPA and the Council on Environmental Quality (CEQ) regulations require an assessment of cumulative impacts, in addition to the evaluation of direct impacts (40 C.F.R § 1508.7, 1508.25). CEQ regulations implementing NEPA define a cumulative impact as:

> ". . . the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The *CEQA Guidelines* require that EIRs discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects.[1] The purpose of this analysis is to disclose significant cumulative impacts resulting from the North Bay Water Recycling Program (NBWRP) in combination with other projects or conditions, and to indicate the severity of the impacts and the likelihood of occurrence (CEQA Guidelines Sections 15130 (a) and (b)). The *CEQA Guidelines* indicate that the discussion of cumulative impacts should include:

(1) Either: (A), a list of past, present, and probable future projects producing related or cumulative impacts; or (B), a summary of projections contained in an adopted general plan or similar document, or in an adopted or certified environmental document, which described or evaluated conditions contributing to a cumulative impact;

(2) A discussion of the geographic scope of the area affected by the cumulative effect;

(3) A summary of expected environmental effects to be produced by these projects; and,

(4) Reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

[1] CEQA *Guidelines* Section 15130, 15065, as amended January 1, 2000.

The analysis of cumulative effects in this chapter focuses on the effects of concurrent implementation of the proposed NBWRP with other spatially and temporally proximate projects. As such this analysis will rely on a list of projects that have the potential to contribute to potential cumulative impacts in the project area. The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

4.2 Related Projects

4.2.1 Geographic Scope

The potential for project-generated impacts to contribute to a significant cumulative impact would arise if they are located within the same geographic area. This geographic area may vary, depending upon the issue area discussed and the geographic extent of the potential impact. For example the geographic area associated with construction noise impacts would be limited to areas directly affected by construction noise, whereas the geographic area that could be affected by construction-related air emissions may include a larger area. In general, impacts associated with the implementation of the NBWRP are limited to short-term construction impacts. Long-term impacts are limited to beneficial impacts to water supply and energy use associated with recycled water treatment and distribution.

Construction impacts associated with aesthetics, increased noise, dust, erosion, and access limitations tend to be localized and could be exacerbated if other development or improvement projects are occurring within the vicinity of proposed facilities. The geographic scope may vary for each issue area depending on the nature of the cumulative impacts. When considered cumulatively with other projects that may occur in the same geographic vicinity, the scope of analysis is defined by the physical boundaries for each issue area. Therefore, cumulative impacts to water quality would occur within the watershed. For this cumulative analysis, the two geographic boundaries that capture the majority of these impacts are the North San Pablo Bay watershed and the Bay Area Air Basin. Where appropriate, other jurisdictional boundaries are applied for individual issue area analysis.

4.2.2 Project Timing

In addition to the geographic scope, cumulative impacts are determined by timing of the other projects relative to the proposed project. Schedule is particularly important for construction related impacts: for a group of projects to generate cumulative construction impacts, they must be temporally as well as spatially proximate. The projects described in **Sections 4.2.3** and **4.2.4** are likely to fluctuate due to schedule changes of other unknown factors, this analysis assumes these projects would be implemented concurrently with implementation of the NBWRP.

4.2.3 Relationship to Water Supply Projects Occurring Outside of the North San Pablo Bay Watershed

As noted throughout this EIR/EIS, water supply within the North San Pablo Bay watershed is provided by three primary sources: water supply imported from outside of the watershed, local surface water diverted within the watershed, and groundwater. Imported supplies include supplies imported from the Russian River (including a portion diverted from the Eel River watershed by PG&E's Potter Valley Project) and distributed within Sonoma and Marin Counties by Sonoma County Water Agency (SCWA), and supplies imported from the Sacramento-San Joaquin Delta and delivered to Napa County by the Department of Water Resources. A number of projects that have potential to affect the amount, timing, availability, quality, and management of imported water supplies have or will be proposed, and may be implemented outside of the North San Pablo Bay Watershed.

The objectives of the NBWRP are identified in **Chapter 2, Project Description**. NBWRP would recover[2] wastewater that is currently discharged to North San Pablo Bay, and reuse that water for urban and agricultural irrigation in order to offset the use of potable supplies for this purpose. The level of potential potable offset is identified in **Section 3.2, Groundwater, Section 3.4 Water Quality, and Section 3.11, Public Utilities**. The NBWRP's only contribution to impacts related to the provision of imported surface water supplies is beneficial, as the provision of recycled water would offset use of potable supplies for irrigation.

4.2.4 Type of Projects Considered

As described in **Chapter 3.0** of this EIR/EIS, the majority of impacts associated with implementation of the proposed NBWRP are short-term impacts related to construction of the proposed facilities, rather than long-term project operation. Therefore, cumulative effects will primarily result from potential combined impacts of other construction projects in Sonoma, Napa, and Marin Counties. For this analysis, other past, present, and reasonably-foreseeable future construction projects, particularly other infrastructure projects, in the area have been identified.

Table 4-1 lists recent, current, and proposed projects that, along with implementation of the NBWRP, could potentially contribute to cumulative impacts within the project area. A brief overview of large capital improvement projects planned by public agencies is provided below. In addition to these specific projects, it is recognized that additional construction development will occur within the project area and may contribute to cumulative construction impacts. Such planned and approved development, as listed in Table 4-1, is in accordance with the General

[2] It should be noted that the recovery of recycled water occurs only after the use of potable water, generation of wastewater through municipal, commercial, and industrial and irrigation uses, and the subsequent treatment of that wastewater to levels appropriate for release to the environment as treated effluent, consistent with NPDES permit requirements. Recovery of treated effluent prior to discharge, and reuse of that effluent for irrigation purposes, would not increase or alter the amount, rate, or distribution of water imported into the area to support existing and future water demands under the approved General Plans within the NBWRP area. Rather, it would offset the use of potable supplies for irrigation. A full discussion of current and projected water demands within the areas served by the NBWRP, based upon approved General Plans within the region, is provided in **Chapter 5, Growth Inducement and Secondary Effects of Growth**. The NBWRP's contribution to the provision of water supplies within the region is also discussed.

TABLE 4-1
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
CURRENT AND ONGOING PROJECTS			
	Marin County Projects		
Caltrans	Culvert Replacement and rock slope installation	Route 1 near Marshall, 1.5 miles south of Marshall Petaluma Road	Undefined
	Marin 101 High Occupancy Vehicle (HOV)Project	San Rafael	Under Construction, Estimated Completion Fall 2009
	Rock slope installation and drainage repair	Highway 1 near Tamalpais-Homestead Valley at 2.2 miles north of Muir Beach Overlook	Undefined
	Rock slope protection installation	Near San Rafael, 0.1 miles north of Sir Francis Drake Boulevard.	Undefined
	Slope and drainage repair	Route 101 in Sausalito, north of Rodeo Drive	Undefined
	Replace failed drainage	San Rafael from Miller Creek Road to Lucas Valley Road	Undefined
	Novato Creek Bridge Levee Reconstruction	Novato	Undefined
Marin County Department of Public Works	Cal-Park Tunnel	Conversion of 1,100 foot long tunnel paralleling Hwy 101 from San Rafael to Larkspur into pedestrian/ cycling path	Under Construction; Completion Scheduled for 2010
Marin County Flood control and Water Conservation District	Improvements in Novato Flood Zone 1	Portion of Vineyard Creek, upstream of Center Road to downstream of McClay Avenue	
	City of San Rafael		
City of San Rafael Public Works, Capital Improvements Projects	Intersection Improvements	Medway Street from Francisco Boulevard East to Canal, San Rafael	Under Construction
	4th Street Rehabilitation and West End Village	4th Street from D Street to 2nd Street, San Rafael	Under Construction
	City Plaza Improvements	4th and Court Streets, San Rafael	Under Construction
	Bicycle Pedestrian Master Plan Update	City of San Rafael	ND 2008
	Fifth Avenue Signal Upgrade	Fifth Avenue, Downtown San Rafael	January through March 2009
City of San Rafael Planning Division	San Rafael Corporate Center	City of San Rafael	Under Construction
	Northgate Mall Renovation	City of San Rafael	Under Construction
	Chrysler/ Jeep/ Dodge Dealership; VW/ Audi and Nissan Dealership; Smart Car Dealership	City of San Rafael	Under Construction
Marin Municipal Water District	Desalination Project	City of San Rafael	FEIR December 2008
	Recreation Facility at San Rafael Airport	City of San Rafael	Under Construction
	Target	Shoreline Center, City of San Rafael	Planning; DEIR September 2008
	Marin County Health Campus	City of San Rafael	Under Construction
	Mt. Tamalpais Cemetery	City of San Rafael	Design

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
	City of San Rafael (cont.)		
Marin Municipal Water District	Village at Loch Lomond Marina	City of San Rafael	Planning
	Condos at San Pablo Avenue	City of San Rafael	Under Construction
	Mixed used residential	Tamalpais and 3rd Street, San Rafael	Design
	Subdivision	Emma Court	Application
	City of Novato		
City of Novato Department of Public Works Capital Improvement Projects	Storm Drain Master Plan	City of Novato	Completion scheduled 2009-2010
	Municipal Building Renovation	901 Sherman Avenue, City of Novato	Construction in 2008 scheduled for completion Summer 2009
	Neighborhood Projects	City of Novato	Continuing; dependent on scope and type of project
	Hamilton Pool/ Gymnasium Renovation	City of Novato	Design Phase 2008-2009; Pool construction 2009, reopening 2010; Gymnasium completion scheduled for 2012
	Commuter Bike Connection	Westerly side of Highway 101, Enfrente Rod to South Novato Blvd	Construction Spring/Summer 2009; Estimated completion Fall 2009
	Hamilton Wetlands Access	Feasibility study for alternate access road from Hamilton Parkway to the Wetlands Restoration Project area	Feasibility Study began in Winter 2006-2007; Environmental review completed summer 2008; Construction schedule pending
	Road Improvements to address walkway, bikeway, and drainage issues	Indian Valley Road; Hill Road	2009-2010
	Roadway Improvements to address safety and traffic congestion	Novato Blvd. between Diablo Avenue and Grant Avenue	NEPA/ CEQA Environmental Review scheduled for completion early 2009; Construction 2011-2012
	Roadway Improvements	Rowland Blvd between Redwood Blvd. and Vintage Way	Construction 2012
	Phase III Roadway Improvements	Olive Avenue between Redwood Blvd. and Railroad Avenue	Construction during Spring/Summer 2009
	Street Improvements	Mill Road.	Construction period 2008-2009
	Drainage Improvements	Rush Creek, City of Novato	Construction schedule dependent on funding

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
	Sonoma County		
Caltrans District 4	Highway 101 Widening Project	Continuous HOV lane extension from Southern Marin County to Windsor, Sonoma County; Wilfred Avenue to Highway 12; Highway 12 to Steele Lane, Rohnert Park Expressway to Wilfred avenue, Steele Lane to Windsor River Road, Old Redwood Highway in Petaluma to Rohnert Park Expressway.	Construction 2007-2009
	Marin Sonoma Narrows Project	Extends 26 miles from South of Route 37 interchange in Novato to Corona Road Overcrossing in Petaluma	EIR 2007; Ongoing construction and environmental review; Estimated completion 2011
	Santa Rosa HOV Widening	Route 12 from S. Santa Rosa Overhead to the Route 12/101 Separation and on Route 101 from Earle Street Pedestrian Overcrossing to Steele Lane	2008-mid 2010 (3 phases over a 2.5 year period)
Sonoma County Transportation and Public Works Department	Geyserville Park & Ride Visitor Plaza	Sonoma County	Under Construction
	Road Improvements- State Route (SR) 12 Corridor Improvement Project Phase II, Stage 1; Sidewalk Project	SR 12	October 2008 to June 2009
	River Road Channelization and River Access Project	Sunset Beach, Sonoma County	Under Construction
	Central Landfill Leachate and Compressed Landfill Gas Pipeline Project	Rohnert Park Expressway and Stony Point Road, Sonoma County	Under Construction
	Central Landfill Site - East Canyon Expansion Phase IV	Sonoma County	Permits Pending
	Signalization and widening	Adobe Road and East Washington Street, Petaluma	2009
	Slide Repair (Federal Aid Project)	River Road, Sonoma County	Under Construction
Sonoma County Permit and Resource Management Department	Draft Grading, Drainage, Vineyard-Orchard Ordinance	Sonoma County	Hearing on October 21, 2008
	Roblar Road Improvements	Roblar Road, southern Sonoma County, approximately five miles west of the City of Cotati	Planning Commission Approval Pending
	Blue Rock Quarry	Highway 116 approximately one mile west of Forestville in Sonoma County	Final EIR (FEIR), Planning Commission Approval Pending
	Dutra Asphalt and Recycling Facility	southwestern unincorporated Sonoma County, directly south of Petaluma, along the Petaluma River	Environmental Review period; Planning Commission Approval Pending
	Housing Element Update 2009	Sonoma County	Ongoing
	Penngrove Design Guidelines	Penngrove Mainstreet	Draft
	Preservation Ranch Project	19,652-acre1 property in northwestern Sonoma County	Environmental Review/ Application Pending

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
	Sonoma County (cont.)		
Sonoma County Water Agency	Russian River Instream Flow and Restoration	Russian River Watershed, Jenner	DEIR 2013
	North Sonoma County Agricultural Reuse Project	Northern Sonoma County	FEIR 2009
	Russian River County Sanitation District Equalization Basin Storage Project	Russian River Wastewater Treatment Plant, Guerneville, Russian river Watershed	FEIR March 2009
	Sea Ranch Sanitation Zone Wastewater Treatment, Storage and Disposal Modifications Project	Sea Ranch Community, Sonoma County	DEIR
	Sonoma Valley County Service District Trunk Line Project	Sonoma, Schellville	Construction 2009
	Water Supply, Transmission, and Reliability Project	Sonoma County; Lake Sonoma, along Dry Creek downstream of Lake Sonoma/Warm Springs Dam, and along the mainstem of the Russian River downstream of the confluence with Dry Creek	DEIR 2009
	Sewer Lateral Ordinance	All Sanitation Districts within Sonoma County	Proposed 2009
	City of Sonoma		
	No Current Projects		
	Napa County		
Caltrans (SHOPP)	Tulucay Bridge #21-0003 Replacement	Route 121 in Napa	Undefined
	Sarco Creek Bridge #2-0008 Replacement	Route 121 near Napa	Undefined
	Cappell Creek Bridge #21-0009 Replacement	Route 121 near Napa	Undefined
	1.7 miles of Road Improvements (Contract No. 444214)	121 in Napa County from Duhig Road to the Sonoma Napa County line	Construction from February 2009 to December 2009
	Inlet and Drain Installation	Route 128 near St. Helena, east of Lake Hennessey	
	Horizontal Drain Installation	Route 128 near Lake Berryessa, 1.1 miles south of Knoxville Road	
Napa County Public Works	Airport Glideslope	Napa County Airport	Planning
	Duhig Bike Path	Bike lanes will begin at intersection of Duhig Road and Las Amigas and run south for approximately 2,500 feet; terminate at Huichica Creek bridge	Planning (as of 3/25/2009)
	Oak Knoll/ Oakville Crossroad	Oak Knoll to Oakville Crossroad reach of the Napa River, continuation of Rutherford Dust Project	Planning, 2010 Implementation
	Underground Storage Tank Cleanup	Napa County Airport	Planning
	Whitehall Lane Washout Repair	Whitehall Lane, Napa	Planning
	White Sulfur Springs Road	White Sulphur Springs Road, St. Helena	Planning

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
	Napa County (cont.)		
Napa County Public Works (cont.)	General Aviation Apron Rehabilitation	Napa County Airport	Planning
	Dry Creek Road slide Repair	Dry Creek Road, Napa	Planning
	Napa County Airport	Napa County Airport	Planning/ Environmental Assessment
	Oakville Crossroad Bridge Replacement	Oakville Crossroad near Route 29, south of Lake Berryessa	Design
	Rule 20 A Underground Utilities	State Route 29, Galleron Lane to Dowdell Lane, St. Helena and Napa County	Design
	Main Street Water Main	City of Napa	Construction
	Redwood Road	City of Napa	Construction
Napa County Conservation, Development and Planning Department (CDPD)	Angwin Project	Pacific Union College, Angwin, Northern Napa County	Master Development Plan: July 2007
	Lake Luciana Project	Weeks Lake, Pope Valley, Napa County; Pope Valley Road and Barnett Road	Planning
	Napa Pipe Project	29 intersections in City of Napa, City of American Canyon, Napa County,	Planning
	Napa River Rutherford Reach Restoration Project	Reach of Napa River near Zinfandel Lane and Oakville Crossroad, City of Napa	MND 2008
	Upper Range Vineyard Project	678 acres between Silverado Trail and Lake Hennessey, 13 miles north of the City of Napa	Planning
	General Plan 2008	Napa County	Current/ Ongoing
	General Plan Housing Element	Napa County	Current/ Ongoing
Napa Sanitation District (Napa SD)	Napa State Hospital Recycled Water Pipeline	Napa Valley College and Napa State Hospital	Design
	Lower Alphabet Street Sewer Improvement Project	A Street to I Street between York Street and Jefferson Street in the City of Napa	Design
	Stonecrest Area Sewer Project	Stonecrest Drive vicinity in City of Napa	Design
	I/I Reduction Construction Projects	City of Napa	Planning
	Alphabet Street –Upper Section Sewer Project	Alphabet Streets west of York Street in City of Napa	Planning
	Browns Valley Road and First Street	City of Napa	Planning
	Pump Station Removal (in conjunction with Napa County Public Works)	First Street and Soscol Avenue	Fall 2009
Napa Flood and Water Conservation District	Napa River- Napa Creek Flood Protection Project	City of Napa from Highway 29 at Butler Bridge north to Trancas Street, 6 miles on the Napa River, 1 mile on Napa Creek	Scheduled for completion 2011
City of Napa Planning Department	Stanly Ranch Resort Development	North of Napa River, east of Cuttings Wharf Road, south of Hwy 12/121	FEIR

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
	City of Napa		
City of Napa Planning Department (cont.)	Bridge Replacement	First Street from Juarez Street, over Napa River, west of Silverado Trail; detour routes on Lincoln, Soscol, 3rd Street, and Hwy 121	Bridge Closure until Fall 2009
City of Napa Public Works Department –Engineering Division Capital Improvements Projects	Various Road Widenings	Big Ranch Road at Trancas Street to Salvador Creek Bridge; Linda Vista Avenue and Trower Avenue; Jefferson/ Salvador	Under Construction until 2009/2010
	Hidden Glen Park Project	Hidden Glen Landfill	Estimated completion 2009
	Guardrail Installation	East Avenue	Estimated completion 2009
	Annual Street Resurfacing	Various city roadways	Fall 2009
	Street Widening	1000 block of Orchard Avenue on the south side of the street	Fall 2009
	First Street River Overlook (in conjunction with Napa SD pump station removal)	First Street and Soscol Avenue	Fall 2009
	Dock Project	4th Street Boat Dock, Main Street	Estimated Completion Fall 2009
City of Napa Public Works Department –Transportation Division Capital Improvements Projects	Signalization Projects	Redwood Road at Carol Drive; California Blvd at Pueblo Avenue; Jefferson Road at Old Sonoma Road; Highway 29 at Imola Road	Under Construction 2008-2009
	RECENT PROJECTS		
	Marin County		
Marin County Flood Control and Water Conservation District	Improvements in Novato Flood Zone 1	Portion of Vineyard Creek, upstream of Center Road to downstream of McClay Avenue	November/December 208
City of San Rafael Department of Public Works	Intersection Improvements	Medway Street/ Canal intersection	Summer 2008
	Pedestrian Safety Improvements	Canal Street	December 2009
	Pavement Rehabilitation	Alameda del Prado	Completed 2008
	Bridge Replacement	Center Road at Vineyard Creek, Novato	October 2008
	Road Improvements	Cypress Avenue on south side of Novato Blvd, west of Diablo Avenue; Kendon Lane Assessment District from Center Road to the southerly end	Completed 2008
	Bridge Replacement	Grant Avenue over Novato Creek near intersection with Virginia Avenue	Completed 2008
	Pavement Rehabilitation	Novato Blvd. between Grant Avenue and Eucalyptus	Completed 2008
	Hamilton Firehouse Conversion	Hamilton Air Force Base, City of Novato	April 2008
	Pioneer/ Scottsdale Park Improvements	City of Novato	2003-2008

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
	Marin County (cont.)		
City of Novato Public Works (CIP) (cont.)	Teen Center Renovation	Grant Avenue, City of Novato	June 2008
	Canyon Roadside Ditch Replacement	City of Novato	2007-2008
	Scour Mitigation	Grant Avenue Bridge at Novato Creek, City of Novato	2007-2008
	Flood Protection Levee Improvement	Hamilton Field, City of Novato	2007-2008
	Drainage Modifications	McKeon Court, Wilmac Court, City of Novato	2007-2008
North Marin Water District	Stone Tree Golf Course Recycled Water Pipeline	Adjacent to Highway 37, Novato	Completed June 2007
	Stafford Lake Water Treatment Plant	Novato Creek, 4 miles west of downtown Novato, adjacent to Novato Boulevard	Completed; in operation
	Sonoma County		
Caltrans District 4	Road Improvements	101 East Blithedale Offramp	2008
	Culvert Replacement	Route 1 near Fort Ross, at Fort Ross Creek, Jenner	2008
	Culvert Replacement	Route 1 near Timber Cover, 2 miles south of Fort Ross State Historic Park	2008
	Embankment reconstruction	Route 1 near Jenner, 0.2 miles west of Pacific Avenue	2008
	Rock slope protection Installation	Route 1 in Fort Ross Historic Park, 0.5 mile east of Fort Ross Road	2008
	Drainage system installation	Route 116 at Route 12 in Sebastopol	2008
	Soldier Pile Wall Construction	Route 116 near Guerneville, east of Mays Canyon Road	2008
	Laguna de Santa Rosa #20-0035 bridge replacement	Route 12 in Sebastopol	2008
	Culvert Replacement	Route 121 near Schellville, 0.6 miles north of Flying Arrow Ranch Road	2008
	Replace Maacama Creek Bridge #20-42and Redwood Bridge # 20-43	Route 128 near Napa	2008
Sonoma County Transportation and Public Works	Road Slide Repair	Sonoma Mountain (1st District)	December 2008
	Rubberized Asphalt Overlay Project (various roadways)	Porter Creek in East Sonoma County toward Calistoga; D Street west of Petaluma City limits; Airport Blvd.	October 2008
	Sidewalk Replacement	Moorland Avenue (5th District)	August 2008
	Road Improvements, turn lanes	River Road at Sunset Beach	August 2008
Sonoma County Permits and Resource Management Department	Canyon Rock Quarry	unincorporated Sonoma County west of the Town of Forestville	FEIR, 2006

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
	Sonoma County (cont.)		
Sonoma County Permits and Resource Management Department (cont.)	Canon Manor	Sonoma County adjacent to City of Rohnert Park Petaluma Hill Road, East Cotati Avenue, Bodway Parkway.	FEIR 2005, Completed 2008
	Gallo Winery Expansion	Dry Creek Road, Healdsburg	FEIR 2005
	Sonoma Country Inn	Graywood Ranch, State Route 12 in the unincorporated community of Kenwood in Sonoma County; north side of Route 12 near the intersection of Route 12 and Lawndale Road; approximately 0.75 mile east of the Pythian Road intersection with Route 12 and approximately 0.6 mile west of the intersection of Adobe Canyon Road	FEIR 2004
	Korbel Summer Crossing	Odd Fellows Park Road	Completed July 2008
	Riverside Drive Bridge Replacement	Sonoma Creek	Completed 2008
	River Road Viaduct at Eagle Nest Lane, 2006	Sonoma County	Completed 2008
	Windsor Intermodal Facility – Phase II, 2006	Sonoma County	Completed 2008
	Seismic Retrofit of Russian River Bridge (20C-016) on Moscow Road, 2002	Sonoma County	Completed 2008
	Santa Rosa Avenue Storm Drain Phases 1 & 2	Sonoma County	Completed 2003
	Napa Road at Eighth Street East Phase II Storm Drain; Signalization	Sonoma County	Completed 2008
	Seismic Retrofit of Russian River Bridge #20C-00	Crocker Road	Completed 2006
	Seismic Retrofits of Laguna de Santa Rosa Bridge	Guerneville Road and South Fork of Gualala River Bridge; Hauser Bridge Road and House Creek Bridge ;Stewarts Point-Skaggs Springs Road	Completed 2008
	Seismic Retrofits on Dry Creek Bridge, Freezeout Creek Bridge, and Petaluma River Bridge	Stewarts Point-Skaggs Springs Road, Freezeout Road, Petaluma Boulevard North	Completed 2008
	Overlay Projects (various locations)	Lakeville Road; Arnold Drive; Adobe Road; River Road, Sonoma County	Completed 2008
	Napa County		
Napa County Public Works	Diamond Mountain Road	City of Calistoga,	Complete
	Steele Canyon Road	City of Napa	Complete
	Deerpark Asphalt Overlay	Deerpark Road, St. Helena ; from its intersection at Silverado Trail to Howell Mountain Road	Complete
	Sunnyside Drive and Deerpark Road	City of St Helena	Complete
City of Napa Public Works Department – Engineering Division Capital Improvements Projects	Commuter Bike Path	Along Napa Valley Railroad from Main Street to Lincoln Avenue	Fall 2008

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Jurisdiction	Project	Area Affected	Status
	Napa County		
City of Napa Public Works Department – Engineering Division Capital Improvements Projects (cont.)	Napa River Oxbow Preserve Project	13 acre adjacent to Napa River	Summer 2008
	Underground Utility Project	1st and 2nd Streets, California Boulevard, and Jefferson Street, Napa	Fall 2008
	River Park Canal Maintenance District	Various canals at River Park, City of Napa	Fall 2008
	Underground Storage Tank Investigation and Remediation	645 Soscol Avenue	2008
	Roadway Resurfacing	McKenzie Drive between Silverado and Oxbow Preserve; various	Fall 2008
Napa Sanitation District (Napa SD)	North Napa Sewer Trunk Line Rehabilitation Project	Various segments along the North Napa Sewer Trunk line	Completed 2004
	Trancas Street Manhole Trenchless Rehabilitation	Trancas Street near Soscol, City of Napa	Completed 2003
	Streblow Drive Recycled Water Pipeline Project	Streblow Drive from Kennedy Park Recycled Water Pipeline Project, near railroad tracks along Highway 221, affects Napa Valley College and Napa State Hospital	Complete
FORESEEABLE FUTURE PROJECTS			
	Marin County		
Marin County Department of Public Works (CIP)	Miller Creek Road and Trail Inventory for Watershed Plan	San Rafael	2008-2009
	Fish Protection Project	San Geronimo Creek	2008-2009
	Ring Mountain Enhancement Plan		2008-2009
	Railroad grade culvert Installation	Blithedale Creek	2008-2009
	Baywood Canyon Barn Creek Restoration	Loma Alta	2008-2009
	Playground Improvements	Village Green at Stinson Beach	2008-2009
	Irrigation	Civic Center Lagoon	2008-2009
	Dredging	Novato Creek	2008-2009
	Vineyard Creek Improvements, Zone 1 Phase II	Center Road, Arbor Circle to McClay Road, Novato	2008-2009
	Bothin Marsh Restoration ad Flood Control Improvements Project	Coyote Creek and Bothin Marsh in Bothin Marsh Open Space Preserve	2008-2009
	Seminary Drive Pump Station	Redwood Highway, Highway 1 Seminary Drive Northbound off-ramp	2008-2009
	Slough Culvert Replacement	Corte Madera	2008-2009
	Fish Ladders	Multiple locations: Wood Acre Creek, San Geronimo Creek, Arroyo Creek, Larsen Creek, Montezuma Creek, Cheda Creek	2008-2009

SOURCE: Compiled by ESA, 2008; Caltrans, 2008; City of Sonoma, 2008; City of San Rafael, 2008; City of Novato' 2008; Marin County, 2008; City of Napa, 2008; Napa County, 2008; Sonoma County, 2008; Napa SD, 2008; SCWA 2008

Plans for Sonoma County, Napa County, and Marin County General Plans, and the Cities of Sonoma, Napa, San Rafael, and Novato. The growth inducement potential of the NBWRP and the secondary effects of accommodating planned growth within the project area are discussed separately in **Chapter 5, Growth Inducement and Secondary Effects of Growth**.

4.2.5 Description of Cumulative Projects

A discussion of individual water service and water recycling projects considered in the Sonoma, Napa, and Marin County areas, and their anticipated environmental impacts is provided below. **Table 4-2** provides a summary of these projects, their geographic relationship to the NBWRP service areas, the types of impacts anticipated for their implementation, and the potential for the NBWRP to contribute to cumulative impacts associated with these projects.

Marin Area Projects

North Marin Water District and Novato Sanitation District Stone Tree Golf Course Ponds

The newly-constructed Recycled Water Facility, located adjacent to State Route 37, commenced operation in June 2007. The 0.5-million gallons per day (mgd) treatment facility provides irrigation water to the Stone Tree Golf Course in Novato. The Novato Sanitation District (NSD) is responsible for treatment of wastewater to meet California Department of Public Health (CDPH) Title 22 requirements for unrestricted bodily contact, while the North Marin Water District is responsible for distribution. This project is a first step to introduce and expand the use of recycled water within the Novato Service Area. The facility will offset approximately 260.95 acre-feet per year (AFY) of potable water demand for landscape irrigation, reduce dependence on imported water supply from the Russian River, and reduce wastewater discharge into the San Pablo Bay.

Impacts Identified

Impacts typically associated with recycled water projects include short-term construction impacts to land use, air quality, traffic, noise, aesthetics, and water quality. Other potential impacts include disruption of habitat for wildlife species, and impacts to water quality from increased erosion and sedimentation during construction.

Marin Municipal Water District Desalination Project

The Marin Municipal Water District (MMWD) conducted a Seawater Desalination Pilot Study and produced an Engineering Report that examined the potential for developing a desalination facility to address drought-related drinking water supply issues. The report included cost estimates and design criteria. The Final EIR for the Desalination Project was released by the MMWD in December 2008 and certified by the Board of Directors on February 4, 2009[3]. The

[3] Although the FEIR was certified, the project itself has not been approved. Desalination has been deferred until MMWD adopts a rate increase and the next 2-year budget. It is estimated that construction of the desalination facility would not occur for at least 1-2 years after project approval and permitting. On February 11, 2009, MMWD presented other water supply options to the Board, including revised operation procedures at reservoirs, potential connection with the Kastania pipeline (SCWA-operated), increased conservation efforts, and expanded recycled water use.

TABLE 4-2
SUMMARY OF OTHER WATER RESOURCE PROJECTS AND RELATIONSHIP TO NBWRP

	Project Impacts	Located in North San Pablo Bay Watershed?	Located in Bay Area Airshed?[4]	Imported Surface Water Supply Source		NBWRP Contribution?	NBWRP Contribution Type	NBWRP Contribution Significant?	NBWRP Contribution Cumulatively Considerable?
				Russian River	State Water Project				
General Plan Development	Construction	Yes	Yes	Marin Sonoma	Napa	Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No
General Plan Infrastructure	Construction Operations	Yes	Yes	Marin Sonoma	Napa	Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No
WATER RESOURCE PROJECTS									
Marin County Projects									
Stonetree Recycled Water Project	Operations	Yes	Yes	Yes	No	Yes	Water Supply GHG Emissions	Beneficial No	No No
MMWD Desalination	Construction Operations	Yes	Yes	Yes	No	Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No
Sonoma County Projects									
SCWA Water Supply Project	Construction Operations	Yes	Yes	Yes	No	Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No
Russian River Integrated Flow and Restoration (RRIFR)/SWRCB 1610 Modification	Construction Operations	Yes	Yes	Yes	No	Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No
Eel River and Potter Valley Project	Operations	No	No	Yes	No	Yes	Water Supply	Beneficial	No
North County Agricultural Recycling Project	Construction Operations	No	Yes	Yes	No	Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No
City of Santa Rosa Subregional Urban Water Reuse System	Construction Operations	No	Yes	Yes	No	Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No

[4] The term "airshed" is defined by the Bay Area Air Quality Management District (BAAQMD) as a geographical area of which, because of topography, meteorology, and climate, shares the same air. For analysis of the NBWRP, airshed refers to all areas that share the same air within the action area. This term is an applicable in the analysis of cumulative impacts on air quality as a result of concurrent construction or operation of projects within the same spatial and temporal locations.

TABLE 4-2 (Continued)
SUMMARY OF OTHER WATER RESOURCE PROJECTS AND RELATIONSHIP TO NBWRP

	Project Impacts	Located in North San Pablo Bay Watershed?	Located in Bay Area Airshed?	Imported Surface Water Supply Source		NBWRP Contribution?	NBWRP Contribution Type	NBWRP Contribution Significant?	NBWRP Contribution Cumulatively Considerable?
				Russian River	State Water Project				
Sonoma County Projects (cont.)									
City of Petaluma Recycled Water Master Plan	Construction Operations	Yes	Yes	Yes	No	Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No
Russian River County Sanitation District Equalization Basin Storage Program	Construction Operations	No	Yes	Yes		Yes	Construction Water Supply GHG Emissions	No Beneficial No	No No No
Sea Ranch Sanitation Zone Wastewater Treatment, Storage, and Disposal Modification Project		No	Yes	Yes		Yes	Water Supply	Beneficial	No
SVCSD Trunk Line Project	Construction	Yes	Yes	Yes	No	Yes	Construction	No	No
SVCSD Lateral Project	Construction	Yes	Yes	Yes	No	Yes	Construction	No	No
North Coast IRWMP	Construction Operations	No	No	Yes	No	Yes	Water Supply	Beneficial	No
San Francisco Bay Area IRWMP	Construction Operations	Yes	Yes	Yes		Yes	Construction Water Supply	No Beneficial	No
Sonoma Valley Groundwater Management Plan	Operations	Yes	Yes	Yes	No	Yes	Water Supply GHG Emissions	Beneficial No	No No
Napa County Projects									
Napa Salt Marsh Restoration Project	Construction Operations	Yes	Yes	Yes	No	Yes	Water Supply Construction	Beneficial No	No
Greater North Bay Area Projects									
Town of Windsor	Construction Operations	No	Yes	Yes	No	Yes	Water Supply	No	No
Regulatory and Other Cumulative Projects									
303(d) Listing of Waterways	Construction Operations	Yes Yes	Yes Yes	Yes Yes	No No	Yes Yes	Water Quality Water Quality	No Beneficial	No No
Sonoma County Aggregate Resources Mining Plan	Construction Operations	No No	Yes Yes	Yes Yes	No No	Yes Yes	GHG Emissions GHG Emissions	No No	No No

proposed Desalination Project consists of raw water intake, pretreatment system, a reverse osmosis system, disinfection, brine disposal, and delivery infrastructure. The desalination plant, which could supply up to 15 mgd, would be located in San Rafael. “Raw water” or “feed water” from San Rafael Bay would be collected through an intake at the end of the proposed refurbished Marin Rod & Gun Club pier near the Richmond-San Rafael Bridge. Water would be subject to treatment and brine would be discharged back to the Bay. It has been determined that combining the brine with treated wastewater effluent would reduce the concentration of dissolved salts released into the Bay (URS, 2008).

Impacts Identified

The EIR identified two significant impacts that would occur as a result of project implementation. Short-term construction activities would inevitably cause temporary increased ambient noise, even with mitigation including limiting construction to daytime hours, using equipment with mufflers, locating power generators away from sensitive receptors, and providing notification of construction schedules. Implementation of the project would inevitably adversely affect the visual character of the San Quentin Ridge, however mitigation measures require consultation with a landscape architect to develop a landscaping plan to reduce the visual contrast between the facility and the ridgeline. The MMWD Desalination Project EIR cumulative impact analysis determined that the project would not contribute to cumulatively considerable impacts.

Relationship to NBWRP

Under Phase 1 and the Basic System, recycled water supplies from LGVSD would be served to Hamilton Field in North Marin Water District’s (NMWD) service area. Under Phase 1 and the Basic System, a potable offset of NMWD’s supplies would occur.

Under the Partially Connected System, facilities would be constructed to provide recycled water service to the Peacock Gap Golf Course, which currently uses potable water supplies served by MMWD for irrigation demands. Under the Partially Connected System, a potable offset of MMWD supplies would occur.

Sonoma Area Projects

Russian River Supply

Water Supply, Transmission, and Reliability Project (Water Project)

Sonoma County Water Agency (SCWA) proposed the Water Project to provide a safe, economical and reliable water supply to meet the defined current needs and future contractor demands within the SCWA service area by implementing water conservation techniques, increasing the amount of water that could be released from Lake Sonoma and diverted from the Russian River by the transmission system and expansion of water transmission facilities. The Water Project would provide water to the water contractors and other customers in Sonoma County and portions of Marin County. The Restructured Agreement for Water Supply between SCWA and eight public entities, including Cotati, Petaluma, Rohnert Park, Santa Rosa, Sonoma, the Town of Windsor, North Marin Water District, and the Valley of the Moon Water District,

authorizes SCWA to operate and maintain a water supply and transmission system that includes delivery limits consistent with the General Plans of participating cities. The Agreement also includes specific requirements for conservation, including BMPs defined by the California Urban Water Conservation Council, and authority to enforce compliance. It provides for the financing and funding of required Water Project facilities. Elements of the Water Project that have the potential to combine with impacts of the NBWRP include transmission system facilities constructed as part of the Water Project, including water production facilities, pipelines, tanks, pumps, and other related equipment.

Impacts Identified

The Notice of Preparation for the Water Project was published in February 2005 and the Draft Environmental Impact Report was released in 2008. The majority of environmental impacts of the Water Project identified in the EIR would occur at Lake Sonoma, along Dry Creek downstream of Lake Sonoma/ Warm Springs Dam, and along the mainstem of the Russian River downstream of the confluence with Dry Creek. Other project impacts would occur within the SCWA service area and at locations along routes of the transmission system and reliability features. The Water Project EIR includes implementation of facilities within the North San Pablo Watershed and within the San Francisco Bay Area Air Basin. Elements of the Water Project that may result in impacts similar to those identified for the NBWRP include the construction of the Annadel-Sonoma pipeline between three sets of water storage tanks: the Annadel Tanks in Santa Rosa, the Eldridge Tanks in Eldridge, and the City of Sonoma Storage Tanks.

Impacts related to these facilities include short-term and long-term environmental impacts. The EIR identifies construction-related impacts on visual quality, vegetation removal, and public access. Operation of components of the project would require additional electricity that would result in the consumption of non-renewable energy resources and increased greenhouse gas emissions.

Relationship to NBWRP

SCWA’s Water Project proposes additional diversions on the Russian River, and construction of distribution facilities that would occur within the North San Pablo Bay Watershed in the vicinity of Petaluma and Sonoma. However, the NBWRP would not contribute to or affect proposed diversions from the Russian River system. The NBWRP would recover treated wastewater currently discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, the NBWRP would not contribute to significant cumulative water supply impacts.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the North San Pablo Bay Watershed and the San Francisco Bay Area Air

Basin. The NBWRP's potential contribution to these cumulative impacts is further discussed in **Section 4.3** below.

Russian River Instream Flow and Restoration Project and Modification of SWRCB Decision 1610

Over the last 14 years, the SCWA has been working with regulatory agencies, primarily the National Oceanic and Atmospheric Administration (NOAA Fisheries) to address fisheries issues in the Russian River watershed. Two salmonid species inhabiting the Russian River watershed, Chinook salmon and steelhead, have been listed as threatened under the federal ESA, and one species, coho salmon, has been listed as endangered under the federal ESA and under the California ESA. Protective regulations of the ESA prohibit the "take" of these species. "Take" is broadly defined in the ESA and its implementing regulations; it includes not only intentionally killing a protected species, but also actions that unintentionally result in actual harm to an individual of a protected species, including adverse modification of habitat.

Because SCWA's water supply facilities and operations have the potential to adversely affect the three listed species, SCWA entered into a Memorandum of Understanding (MOU) in December 1997 to participate in a consultation under Section 7 of the ESA. The other signatories of the MOU include the USACE (federal agency) and the National Oceanic and Atmospheric Administration (NOAA). In September 2008, NOAA Fisheries issued a Biological Opinion evaluating the impact of SCWA's and the USACE's operations on the listed species and identifying Reasonable and Prudent Alternatives (RPAs) and Recommended and Prudent Measures (RPMs) to be implemented by SCWA and the U.S. Army Corps of Engineers (USACE) to address impacts and potential impacts on listed salmonids. The Biological Opinion concluded that some elements of the USACE and SCWA activities in the Russian River watershed could result in an adverse modification of habitat and jeopardize the continued existence of coho salmon and steelhead in this evolutionary significant unit (ESU).

The RPA and RPM involve both immediate and long-term actions to improve habitat and fish populations. These RPAs and RPMs will guide USACE and SCWA operations to protect threatened or endangered salmonids in the Russian River watershed through the year 2018. Operational changes related to SCWA's water supply facilities include modifications to SWRCB's Decision 1610 to reduce instream flow requirements in the mainstem Russian River and Dry Creek to be more protective for salmonids, changes to how the Russian River estuary sand bar breaching is managed, and improvements to the fish screens and intake structures at the SCWA's Wohler and Mirabel facilities. Alternative actions to support reducing flows in the Russian and Dry Creek were also presented, and included a Dry Creek Bypass Pipeline between Warm Springs Dam and the confluence of Dry Creek with the Russian River, fish habitat enhancements to Dry Creek, and a groundwater banking program.

Modification of SWRCB Decision 1610

Central to the RMAs and RMPs is modification of SWRCB Decision 1610, which established minimum flow requirements for the Russian River in 1986. In May 2007, SCWA identified the need to begin the process of requesting long-term amendments to the instream flow requirements

for the mainstem Russian River and Dry Creek specified in the SWRCB's Decision 1610. These amendments are needed as a result of changes in operations of PG&E's Potter Valley Project (PVP) and changes in instream flow management identified in the Russian River Biological Opinion.

It has become apparent in recent years that the Russian River minimum instream flow requirement may no longer be appropriate. Decision 1610 was adopted before the listing of the three salmonid species under the ESA, and did not specifically address the importance of fall storage in Lake Mendocino to the Chinook salmon migration. Moreover, although Decision 1610 assumed that greater flows were always better for fishery resources, information developed as part of the Biological Opinion indicates that this may not be so, at least for salmonid species in Dry Creek, the Russian River, and the Russian River estuary. Decision 1610 expressly recognized that later fisheries studies might give rise to a need to change the minimum flows established by Decision 1610. Decision 1610 also expressly contemplated that flow changes might be needed in the event of a change in flows from PG&E's PVP, which has now occurred.

The analysis prepared as part of the Biological Opinion determined that lower summer flows in Dry Creek, the upper Russian River (above Healdsburg) and the estuary would improve habitat for the listed salmonid species, while increasing the pool of cool water available in Lake Mendocino to support the fall Chinook salmon migrations runs. Adjusting Decision 1610 flows to meet these fishery objectives would aid in the conservation and recovery of the listed salmonid species.

In 2002, 2004 and 2007 water storage levels in Lake Mendocino declined to dangerously low levels requiring actions to reduce releases and preserve storage. In 2002, the terms of Decision 1610 authorized the necessary reductions in stream flows, but that was not the case in 2004 and 2007. In both of those years, the SWRCB granted the Agency temporary urgency changes in its water right permits, approving temporary lower minimum instream flow requirements to allow water to be preserved in storage in Lake Mendocino. The situation during these years was due to the lack of precipitation during the winter storm season, and in 2007, to unexpectedly lower inflows from the PVP because of changes in the implementation of PG&E's FERC license.

SCWA has started conducting engineering feasibility studies to identify alternatives that could be considered in an EIR/EIS for amending Decision 1610. Alternatives could include a geomorphic reconfiguring of Dry Creek (to improve fish habitat, reduce bank erosion and allow for water supply releases), a Dry Creek Pipeline to divert water supply releases from Lake Sonoma around Dry Creek, and expansion of the conservation fish hatchery at Warm Springs Dam, as well as other alternatives and measures that may be identified. These feasibility studies are anticipated to be completed in 2010 and would allow for development of a project description for the EIR/EIS for amending Decision 1610. SCWA will also be initiating development and meetings of a stakeholder group that will be independently facilitated.

The process by which Decision 1610 was adopted took many years. Similarly, the process to modify Decision 1610 will take many years, and it is consistent with the SCWA's long-term goal of creating a sustainable, balanced system that meets the needs of SCWA's water contractors,

other water users, and the needs of the listed salmonid species. However, because the outcome of the process of modifying Decision 1610 cannot be known with any certainty now, the SCWA Water Project was developed under the assumption that Decision 1610 requirements would remain in effect.

Impacts Identified

The Russian River Integrated Flow and Restoration Project (RRIFR) Program EIR/EIS is scheduled for release in 2012, and the NOP for the EIR/EIS has not yet been released. The nature of impacts associated with the RRIFR Program are anticipated to be related to the interim and permanent changes in release patterns from Warm Springs Dam and Coyote Dam to enhance habitat for salmonids, habitat enhancement of six miles of Dry Creek, and from changes in estuary management to provide enhanced rearing habitat for salmonids. In general, these flow changes are proposed in order to enhance habitat conditions within Dry Creek, the Russian River Estuary, and the east Fork of the Russian River. Implementation of habitat enhancement in Dry Creek would have the potential for short-term construction impacts, including impacts to water quality, sensitive species habitat, cultural resources, land use, and recreational uses. Flow changes identified in the Russian River Biological Opinion would reduce flow levels during summer months. Potential impacts would be related to resulting water quality, reduced in-stream flow, impacts to recreational uses, socioeconomic impacts, and impacts to estuary flora and fauna.

Relationship to NBWRP

The RRIFR Program is proposed in order to address changes contemplated in Biological Opinion issued on September 24, 2008. All management actions are proposed for implementation within the Russian River Watershed, and no facilities would be constructed within the North San Pablo Bay Watershed.

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, the NBWRP would not contribute to direct or indirect impacts that may be associated with modification of Russian River hydrology to benefit listed salmonid species.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to these cumulative impacts is further discussed in **Section 4.3** below.

Eel River and Potter Valley Project

The Eel River watershed is located in Humboldt, Mendocino, Lake, Glenn, and Trinity counties. The Potter Valley Project, owned and operated by PG&E, is comprised of several main elements: Cape Horn Dam, a diversion tunnel, Scott Dam, Lake Pillsbury, and the Potter Valley Power

Plant. The Eel River Power and Irrigation Company constructed the Cape Horn dam and Van Arsdale Reservoir on the Eel River in Mendocino County in 1908. A diversion tunnel leads from the Eel River to the East Fork of the Russian River, and has been used to generate electrical energy at the Potter Valley Power Plant. Scott Dam was constructed at the headwaters of the Eel River, forming Lake Pillsbury. Water is released from the lake to the Eel River, then re-diverted downstream at Cape Horn Dam to the Potter Valley Power Plant through the diversion tunnel. The water continues through the East Fork of the Russian River to Lake Mendocino.

During the summer and fall months, water in the Russian River downstream of Coyote Valley Dam and above Dry Creek is derived from releases stored in Lake Mendocino, some of which is derived from imported Eel River Water via the Potter Valley Project. The Federal Energy Regulatory Commission (FERC) regulates interstate transmission of electricity, natural gas, and oil, and licenses hydropower projects. FERC also has exclusive jurisdiction to establish instream flow standards on federally-licensed hydroelectric projects and has primary authority to review the Potter Valley Project (PVP) instream flow standards in the Eel River. The quantity of water PG&E can divert to the Potter Valley Power Plant is limited by PG&E's FERC license, which will expire in 2022.

From 1922 to 1992, 159,000 AFY of water was diverted to the Russian River. In 1998 PG&E applied to FERC for an amendment to the Potter Valley Project license to alter flows to benefit Eel River salmonid species. PG&E instituted interim PVP flow regimes which led to a reduction in average annual diversion from the Eel River to 131,000 AFY from 1999 to 2004. FERC most recently amended the PVP license on January 28, 2004 (106 FERC 61,065, 2004). On June 2, 2004 FERC issued an order denying a request for a rehearing of the January 2004 order (108 FERC 61,266, 2004). On July 18, 2006, the United States Court of Appeals, Ninth Circuit issued a Memorandum Opinion denying all petitions for review of FERC's 2004 order (California Sportsfishing Protection Alliance vs. FERC 193 Federal Appeal 655). PG&E changed PVP operations during the 2006-2007 water year due to errors in PG&E modeling regarding PVP flow requirements. As a result it is estimated PVP flows into the Russian River watershed will now average 103,000 AFY.

Relationship to NBWRP

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, the NBWRP would not contribute to direct or indirect impacts that may be associated with current operations or future modification of the Potter Valley Project operations.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. However, the Potter Valley Project is

located outside of the San Francisco Bay Area Air Basin. Therefore, implementation of the NBWRP would have the potential to contribute to cumulative effects related to this project.

Recycled Water Projects

North Sonoma County Agricultural Reuse Project

In March 2007, the SCWA and the U.S. Bureau of Reclamation released a Draft EIR/EIS for the North Sonoma County Agricultural Reuse Project (NSCARP). The purpose of the proposed NSCARP is to provide an alternative source of agricultural water to reduce reliance on natural water supplies and address regional water supply and regulatory issues. The proposed NSCARP would supply a total of 7,234 acre-feet of recycled water annually. This water would be delivered to prospective users in Alexander Valley, Dry Creek Valley, and the Russian River Valley to irrigate cropland, offset surface water use, increase summer flows of the Russian River, and reduce agricultural diversions. The public would benefit from this project through the reduction of use of riparian water supplies, the reduction of wastewater discharges to regional waterways, and from the environmental benefit to fish and wildlife. The project would provide presently developed agricultural lands within the Russian River, Alexander, and Dry Creek Valleys with a reliable water supply, thereby reducing demands on the region's natural water sources. The main source of water for this project will be tertiary treated municipal wastewater generated and conveyed in the Geysers Pipeline. Sources of recycled water may be available from the City of Santa Rosa Laguna Subregional Wastewater Treatment Facility, Airport / Larkfield / Wikiup Wastewater Treatment Plant, Town of Windsor Wastewater Treatment Facility, City of Healdsburg Wastewater Treatment Facility, City of Cloverdale Wastewater Treatment Facility, and the Geyserville Wastewater Treatment Facility. The project would involve construction of 18 off-stream water storage facilities; construction of approximately 108 miles of pipeline for transmission and distribution; construction of related structures, booster pump stations, and other appurtenances (SCWA; Bureau, 2007). An Engineering Feasibility Report was submitted to the US Bureau of Reclamation pursuant to Title XVI in March 2006 that identified potential sources of available recycled water, methods of conveyance and storage, service area, and costs. The Bureau of Reclamation will review a feasibility study and the DEIR and approve or reject the project based on Bureau guidelines. The final EIR/EIS is scheduled for release in 2009.

Impacts Identified

Impacts typically associated with recycled water projects include short-term construction impacts to land use, air quality, traffic, noise, aesthetics, and water quality. Other potential impacts include disruption of habitat for wildlife species, and impacts to water quality from increased erosion and sedimentation during construction.

There is a need to maintain instream flows on the Russian River, while simultaneously providing water for other uses, so the recycled water would offset surface water from the Russian River and its tributaries for agricultural irrigation. Implementation of NSCARP would augment water supplies and potentially decrease direct agricultural diversions from the Russian River, which would enable the SCWA to release less water from storage in Lake Mendocino and Sonoma to

meet water demands and instream flow requirements. This would result in more water being conserved in storage in these reservoirs, which would provide more operational flexibility for the SCWA to benefit fisheries sources in the Russian River (SCWA, 2007).

Language in the NSCARP Draft EIR/EIS supports the protection of surface water, maintains existing water rights, and precludes any additional water rights and appropriations:

> "The increased operational flexibility would not result in additional water being available for other uses because existing reservoir storage capacity, water rights, and flow requirements would not change. Though NSCARP would provide recycled water to be used in-lieu of potable water supplies, recycled water users who participate in NSCARP would not lose their existing water right, and their participation would not provide authorization for their existing water right to be used for other purposes or places of use not currently authorized. Therefore, NSCARP would not result in growth-inducing effects because the proposed project would not result in increased flows in the Russian River and any water that remains in the tributaries as a result of this project would not be available for appropriation by someone else" (SCWA, 2007).

No water right transfer or additional diversions will occur, but the DEIR/EIS anticipates that the growth and expansion of the nine incorporated cities in Sonoma County could contribute to agricultural land conversion to non-agricultural uses. The 1989 General Plan has policies that limit major expansions that could induce land conversion. Increased development could produce wastewater flows that exceed treatment capacity (SCWA, 2007).

Relationship to NBWRP

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system, and would expected to contribute to the beneficial impacts identified for the NSCARP. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation within the North San Pablo Bay Watershed.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. However, the NSCARP is located outside of the San Francisco Bay Area Air Basin. Therefore, implementation of the NBWRP would not have the potential to contribute to cumulative effects related to this project.

City of Santa Rosa Subregional Urban Water Reuse System

The City of Santa Rosa has implemented the Santa Rosa Subregional Urban Water Reuse System, which provides sewage disposal and treatment, recycled water storage, conservation, recycled water reuse and/or disposal, industrial waste pretreatment, and infiltration and inflow reduction. The existing Subregional Urban Water Reuse System encompasses a large portion of Sonoma County, including the cities of Santa Rosa, Rohnert Park, Cotati, and Sebastopol, as well as Alexander Valley, Dry Creek Valley and the Russian River from Mirabel to north of Healdsburg.

Under the Santa Rosa Subregional Urban Water Reuse System, the City of Santa Rosa currently uses recycled water that is tertiary treated at the Laguna Wastewater Treatment Plant, to irrigate cropland, golf courses, playgrounds, pasture, and parks. The current reuse program produces 7,000 acre-feet of discharge annually (City of Santa Rosa, 2008). Adoption of Resolution No. 25337 authorized the revision of the Water Reuse Program that would allow the City to commit excess recycled water to other beneficial uses. Since current wastewater is treated to a tertiary level and there exists an excess of water that would otherwise be discharged, the City of Santa Rosa has identified opportunities and developed and updated the Recycled Water Master Plan allocate future reuse of recycled water for beneficial purposes.

The Recycled Water Master Plan is part of the Incremental Recycled Water Program (IRWP). In 2007, the City of Santa Rosa released the Draft Environmental Impact Report for the IRWP which analyzed potential significant impacts associated with implementation of the IRWP Recycled Water Master Plan. The purpose of the IRWP is to provide reliable treatment, recycling, reuse, and disposal of wastewater volume from growth anticipated in local General Plans. The DEIR analyzes the six elements of the IRWP which include conservation, infiltration and inflow reduction, urban reuse, agricultural reuse, Geysers expansion, and discharge. Implementation of all program elements was anticipated to provide up to 17,560.4 AFY of recycled water for beneficial reuse annually (City of Santa Rosa, 2007). The urban reuse element would require increased capacity at the Laguna Plant in order to provide recycled water for existing irrigation sites. Under the Plan, a dual recycled water system would be installed in new development to supply recycled water for industrial or non-potable processes. Pipelines would extend from the Laguna Plant to an urban reuse area. Approximately 1,800 million gallons (MG) of additional storage would be required for full implementation. It is estimated that the urban reuse element could utilize 6,446 AFY of recycled water per year. The agricultural reuse element would also require capacity upgrades at Laguna Plant to provide recycled water for crop irrigation and frost control in the North County and east of Rohnert Park. A pipeline would extend from the existing Geysers Pipeline to the Alexander Valley, Dry Creek Valley, and Russian River irrigation areas. The Plan would require 1,200 MG of storage to support irrigation in areas east of Rohnert Park and 2,900 MG storage to support irrigation in the Alexander and Dry Creek Valleys. It is estimated that the agricultural reuse element could accommodate growth of recycled water flows up to 6,400 billion gallons.

Impacts Identified

The IRWP EIR determined that components of the conservation, infiltration and inflow elements would be affected by ground rupture, but would not cause significant adverse impacts to other resources. After mitigation, all elements would have a less than significant impact on surface water quality, public health, biological resources, and wetlands. However, the IRWP EIR determined that implementation of the urban reuse, agricultural reuse, Geysers expansion, and discharge elements of the IRWP would contribute to significant and unavoidable environmental impacts on transportation, noise, air quality, land use, cultural resources, and visual resources. Transportation impacts would be limited to the construction period. Operation of all components would contribute to an increase in carbon dioxide emissions, as well as increased noise. Upgrades at the Laguna Plant would significantly impact air quality by producing objectionable odors and

emitting greenhouse gases. The direct discharge facility, advanced membrane treatment facility, storage facilities, and pump stations would be inconsistent with existing land use designations, and in some cases, particularly under the Agricultural Irrigation element that would be implemented in the City of Healdsburg, incompatible with adjacent land uses. The IRWP EIR determined that, if implemented in conjunction with NSCARP, there would be a cumulative impact on land use, due to facilities that would be inconsistent with existing land use designations. Storage facilities, in particular, would impact the visual character of the area. When considered with other projects, the IRWP would cumulatively degrade groundwater quality in existing and future wells, which could be hazardous to the public. Similarly, the drawdown of groundwater due to interception of base flow by reservoirs is a localized impact that could be cumulatively considerable if other entities proposing reservoirs for either recycled water or potable water storage also intercept base flow to reduce groundwater recharge.

Relationship to NBWRP

The Santa Rosa Subregional Urban Water Reuse System is proposed to provide recycled water facilities within the Santa Rosa area. The total flow to be managed by the Subregional System is estimated to be 17,560.4 AFY. Implementation of the program would be anticipated to provide a potable offset of 17,560.4 AFY, thereby providing a beneficial impact by reducing demands on Russian River supplies. All proposed facilities are within the Russian River Watershed, and no facilities would be constructed within the North San Pablo Bay Watershed.

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system, and would expected to contribute to the beneficial impacts identified for the Santa Rosa Subregional Urban Water Reuse System. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, when considered with other recycled water programs within the region that would offset potable water demands on Russian River supplies, the NBWRP would contribute to a cumulative beneficial impact.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to these cumulative impacts is further discussed in **Section 4.3** below.

City of Petaluma Water Recycling Expansion Program

The City of Petaluma completed a Draft EIR for the Water Recycling Expansion Program (WREP) in July 2008, and released the Final EIR in October 2008. The City anticipates certification of the EIR City Council consideration on November 3, 2008. Construction is scheduled to begin in 2009. The WREP consists of recycled water use for agricultural and urban uses within the Urban Growth Boundary of the City of Petaluma and unincorporated areas of Sonoma County south and east of the City. The Program will maximize Petaluma's water

resources by increasing Petaluma's water recycling from about 2,149 to 3,284.9 AFY at buildout of the General Plan 2025. The project proposes to implement a number of recycled water facility improvements from 2008 through 2014. At buildout, the WREP would provide 1,995.5 AFY of tertiary treated recycled water, and 1,151.25 to 1,289.4 AFY of secondary treated recycled water. Of the 1,995.5 AFY, 1,424.48 AFY would contribute to potable offset (Winzler & Kelly, 2008).

The WREP consists of conveyance facilities, distribution pipeline, 2.2 MG storage tank for tertiary recycled water, 0.5 to 1.0 MG open reservoir for secondary treated water, a new pump station, and other appurtenances. The EIR evaluates near-term improvements (the storage tank and about 2 miles of pipeline) at a detailed project-level; the remainder of the improvements and the use of recycled water is evaluated at a program-level.

Impacts Identified

Significant impacts on cultural resources, ambient noise levels, and biological resources are anticipated, but would be mitigated to a less-than-significant level upon implementation of BMPs and other mitigation measures. In the WREP EIR cumulative impact analysis, increased greenhouse gas emissions as a result of project implementation would potentially exceed pre-project levels and conflict with AB 32 and its governing regulations. The EIR states that there is uncertainty about the effectiveness of State reduction measures and how they will apply to local governments. Therefore, it could not be determined that there would not be a cumulatively significant impact. The impact analysis also determined that construction activities, when considered with other projects, would be cumulatively significant. Other significant impacts to land use, agriculture, and biological resources were identified, but mitigation was prescribed to reduce the impacts to a less than significant level.

Relationship to NBWRP

The City of Petaluma Water Recycling Program is proposed to provide recycled water facilities within the City of Petaluma and surrounding area. Proposed facilities would be constructed within the North San Pablo Bay Watershed. Implementation of the program would be anticipated to provide a potable offset of 1,996 AFY, thereby providing a beneficial impact by reducing demands on Russian River supplies.

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system, and would expected to contribute to the beneficial impacts identified for the Petaluma Water Recycling Program. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, when considered with other recycled water programs within the region that would offset potable water demands on Russian River supplies, the NBWRP would contribute to a cumulative beneficial impact.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction within the North San Pablo Watershed and long-

term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to these cumulative impacts is further discussed in **Section 4.3** below.

Wastewater Treatment Plant (WWTP) Infrastructure Projects

Russian River County Sanitation District Equalization Basin Storage Project

The Russian River Sanitation District prepared an EIR for the Russian River WWTP Equalization Basin Storage Project (Storage Project). This project would add increase wastewater equalization capacity at the WWTP. The Notice of Preparation was released in March 2006 and the Draft EIR was released in August 2007. The project is comprised of a 4.3 MG earthen storage basin and appurtenant features, including underground piping and pumps.

Impacts Identified

The DEIR for the Russian River Equalization Basin Storage Project identifies the following potentially significant, which will be mitigated to a less than significant level:

- water quality, as a result of erosion from excavation and construction;
- cultural resources, during construction activities;
- biological resources, specifically the northwestern pond turtle, nesting bids, including raptors, and jurisdictional waters;
- sensitive receptors, form noise generated by facility operation;
- traffic, during construction;
- air quality, during construction; and
- increased exposure of people and structures to hazardous materials, wildland fires.

Relationship to NBWRP

The Russian River WWTP Equalization Basin Storage Project is proposed to provide increased effluent storage at the existing WWTP. Proposed facilities would be constructed within the Russian River Watershed, and are proposed in order to more effectively provide treatment during high flow events. Impacts are related to the construction of proposed facilities.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP would not contribute to

other cumulative impacts when considered with WWTP improvements occurring outside of the North San Pablo Bay Watershed, due to the lack of geographic proximity. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Sea Ranch Sanitation Zone Wastewater Treatment, Storage and Disposal Modifications Project

The Sea Ranch area is in the northern coastal area of Sonoma County. In 2007, SCWA prepared a Draft EIR to analyze three project alternatives to address sewage inadequacies in the Sea Ranch area. The primary objectives of the Project are to provide a reliable wastewater treatment, storage and disposal method for the Sea Ranch Sanitation Zone and to reduce the possibility of discharge violations at the Central Treatment Plant during large storm events and periods of high flow. Under the preferred alternative, the Central Treatment Plant would continue to treat raw wastewater to a secondary level and the storage and capacity of the plant would be expanded. The preferred alternative would not include new conveyance pipelines, but would require additional effluent storage ponds, and other appurtenances. Once constructed, the Sea Ranch Sanitation Zone Wastewater Treatment, Storage and Modifications Project would provide wastewater service for failed septic systems at the south end of the Sea Ranch area.

Impacts Identified

The EIR, prepared by SCWA in 2007, identified impacts to air quality, cultural resources, and biological resources to be less than significant after mitigation under the preferred alternative. Impacts to biological resources would have a significant cumulative impact.

Relationship to NBWRP

The Sea Ranch Sanitation Zone Wastewater Treatment, Storage and Modifications Project would provide wastewater service for failed septic systems at the south end of the Sea Ranch area. Proposed facilities would be constructed outside of the North San Pablo Bay Watershed. Impacts are related to the construction of proposed facilities.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP would not contribute to other cumulative impacts when considered with WWTP improvements occurring outside of the watershed, due to the lack of geographic proximity. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Sonoma Valley County Sanitation District Trunk Line Project

In September 2007, SVCSD released the Initial Study/ Mitigated Negative Declaration (IS/MND) for the SVCSD Sewer Trunk Main Replacement Project. The project proposed to abandon and replace the existing trunk main in the SVCSD service area from south of Watmaugh Road, east of Broadway, west of Nathanson and Schell Creeks, to the SVCSD WWTP. Approximately 5,650 linear polyvinyl chloride pipe would accommodate additional flows from stormwater and groundwater infiltration, improve structural stability, and reduce sanitary overflows. The abandoned pipeline would be filled will cement-sand slurry.

Impacts Identified

Upon completion of an Initial Study/ Environmental Checklist, SCWA determined that although the Trunk Main Replacement Project could have a significant effect on the environment, revisions described in a Mitigated Negative Declaration would reduce potential effects to a less-than-significant level.

Relationship to NBWRP

The SVCSD Trunk Line Project is proposed to alleviate capacity constraints within the existing collection system of the SVCSD WWTP. Proposed facilities would be constructed within the North San Pablo Bay Watershed, and are proposed in order to reduce the occurrence of Sanitary System Overflows, thereby reducing impacts to water quality. Impacts are related to the construction of proposed facilities.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the North San Pablo Bay Watershed and San Francisco Bay Area Air Basin. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

SVCSD Sewer Lateral Ordinance

The SVCSD has proposed an amendment to the existing Sewer Lateral Ordinance to reduce inflow and infiltration, prevent sanitary sewer overflow, and to reduce influent into treatment plant. Potential sewer problems include broken or defective cleanout, missing drain caps, separated joints, or root penetration. Current user responsibilities include installation and connection, cleaning and clearing, and joint maintenance. The proposed amendment would require lateral testing at residences prior to the sale of the property, after repair or replacement of a building sewer, or for general protection of public health. The proposed amendment may be

updated in 2010-2011, and would require lateral testing for commercial or multiple family structures by a specified dated and thereafter every ten years, after repair or replacement of a building sewer, or for general protection of public health. If a problem with a lateral is discovered, the owner would be required to repair the lateral and re-test it post-repair.

Impacts Identified

Impacts related to the implementation of the Sewer Lateral Ordinance would be limited to short-term construction impacts associated with lateral repairs. In general, lateral repairs are implemented between residences or commercial buildings and the roadway, and would not be anticipated to result in impacts beyond erosion of excavated areas. Over the long-term implementation of the Sewer Lateral Ordinance would be anticipated to reduce infiltration and inflow to local WWTPs, thereby reducing wet season peak flow events. This would provide operational benefits to WWTPs.

Relationship to NBWRP

The Sewer Lateral Ordinance would reduce infiltration and inflow to local WWTPs, providing operational benefits during peak wet weather events. Impacts are limited to the inspection and repair of individual laterals. The ordinance would include the Sonoma Valley; as such, some lateral repairs may occur within the recycled water service areas identified under the NBWRP.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

North Coast Integrated Regional Water Management Plan

The North Coast Integrated Regional Water Management Plan (IRWMP) was adopted in 2007 to coordinate seven counties and seventy partnering entities and implement basin scale water management strategies. The North Coast Region covers all of Del Norte, Humboldt, Trinity and Mendocino counties, major portions of Siskiyou and Sonoma Counties and small portions of Glenn, Lake, Modoc and Marin. The plan provides guidance for future planning and management of North Coast waterways. The objectives of the plan are to conserve and enhance salmonid populations by protecting habitat and water quality, protect drinking water to ensure safety of public health, and provide adequate water supply with minimal environmental impacts, through an interagency approach. The plan acknowledges water supply issues and states water recycling

for compatible uses may alleviate the North Coast Region's reliance on rainfall. The plan is implemented through a variety of restoration, facility improvement, and erosion control projects, such as the Sonoma County Water Recycling and Habitat Preservation Project.

Relationship to NBWRP

Projects implemented under the North Coast IRWMP include water supply and recycled water facilities. Proposed facilities would be constructed outside of the North San Pablo Bay Watershed. Impacts are related to the construction of proposed facilities. Any impacts to water supply, water quality or water resources would occur outside of the North San Pablo Bay Watershed. Recognizing that a water supply is imported into the North San Pablo Bay Watershed, these project could affect the availability of water supply within the North San Pablo Bay Watershed.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water infrastructure projects proposed under the North Coast IRWP. However, all of those facilities are located outside of the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP would not contribute to other cumulative impacts when considered with water infrastructure improvements occurring outside of the watershed, due to the lack of geographic proximity. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

San Francisco Bay Area Integrated Regional Water Management Plan

The San Francisco Bay Area Integrated Regional Water Management Plan (IRWMP), published in November 2006 and adopted in January 2007, provides guidance for future planning and regional management of San Francisco Bay and its tributaries. The San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates water quality in San Mateo County, and major portions of Marin, Napa, Santa Clara, Alameda, and Contra Costa Counties. The objectives of the IRWMP are to protect and improve hydrologic functions, improve water supply reliability, protect and improve the quality of water resources, and enhance environmental resources and habitats. Planning and management challenges arise from the large geographic scope of the region and the diverse water management needs.

The San Francisco Bay Area IRWMP defines four "Functional Areas" for which a series of objectives, strategies, and projects are identified. The Functional Areas include the quality of water supply, wastewater and recycled water, stormwater management as it relates to flood protection, and habitat protection and restoration as it relates to watershed management (RMC,

2006). There are approximately 43 IRWMP projects related to wastewater and water recycling, including South Bay Aqueduct Recycled water Treatment Project, Redwood City Recycled Water Project, and the Pacifica Recycled Water Project, among others. These projects would provide recycled water for potable offset as a means of enhancing surface water quality in the San Francisco Bay and its tributaries, and improving water supply reliability.

The IRWMP also includes habitat restoration projects to address environmental challenges such as invasive species control, environmental water demands, and sensitive wildlife survival (RMC, 2006). The Sonoma Land Trust, in coordination with other participating agencies, has developed the Sears Point Restoration Project, a 2,327-acre restoration project located in Sonoma County on San Pablo Bay between the Petaluma River and Tolay Creek. The Sears Point Restoration Project would improve stormwater drainage, increase flood protection through construction of new levees, expand recreational opportunities by extending the San Francisco Bay Trail, restore 900 acres of upland areas with riparian species planting and native grassland management, control erosion and sedimentation, remove litter, enhance vernal pools, and restore 1,400 acres of diked baylands to a combination tidal and non-tidal marsh (RMC, 2006).

Relationship to NBWRP

NBWRP is part of the San Francisco IRWMP and would coincide with the various wastewater recycling projects and habitat restoration projects throughout the San Francisco Bay Region. Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water infrastructure projects proposed under the San Francisco Bay Area IRWMP. However, the majority of the water recycling projects is outside of the North San Pablo Bay Watershed; therefore, the NBWRP would not contribute to other adverse cumulative impacts when considered with water infrastructure improvements occurring outside of the watershed, due to the lack of geographic proximity. In general, concurrent implementation of the NBWRP and other IRWMP projects would generate long-term regional benefits for surface water quality and water supply reliability. The Sears Point Restoration Project coincides with the continuation of the Napa Salt Marsh Restoration Project and implementation of the proposed NBWRP, which would potentially result in regional benefits for sensitive habitat areas.

Sonoma Valley Groundwater Management Plan

Pursuant to the Groundwater Management Act California Water Code § 10750, the Sonoma Valley Groundwater Management Plan Basin Advisory Panel developed the Sonoma Valley Groundwater Management Plan to address the sustainability of local groundwater resources in light of groundwater depletion and increasing demands. The Basin Advisory Panel consists of representatives from SCWA, the City of Sonoma and the Valley of the Moon Water District, as well as members of the public, local business owners, farmers, and environmental interest groups. In 2007, the SCWA Board, City of Sonoma, Valley of the Moon Water District, and the Sonoma Valley County Sanitation District adopted the non-regulatory plan. The Plan identifies management practices that contribute to the sustainability of groundwater resources for future use for agricultural, industrial, residential, ecological, and recreational purposes that would be

implemented by local agencies to manage, protect, and enhance groundwater resources. Components of the Plan incorporate water quality control, monitoring, public involvement, and regional planning.

Relationship to NBWRP

The Sonoma Valley Groundwater Management Plan identified recycled water as one of the potential supply sources that could offset groundwater pumping within the area, and would assist in managing the basin for long-term sustainability.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water infrastructure projects proposed within the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Napa Area Projects

Napa Salt Marsh Restoration Project

The Napa River Salt Marsh Restoration Project is a habitat restoration and salinity reduction project located at the northeast edge of San Pablo Bay adjacent to the Napa River, south of the City of Sonoma. This Napa-Sonoma Marsh Wildlife area consists of 9,850 acres of salt ponds, remnant slough and marsh formerly used as an industrial salt production facility. The California Department of Fish and Game (CDFG) purchased the property in 1994, SCWA worked with CDFG, the San Francisco Bay Regional Water Quality Control Board, the USACE and the Coastal Conservancy in development of a plan for restoration of these marshlands to support populations of fish and wildlife. The EIR for the Restoration Project was approved in April 2004, and the EIR/EIS was published in June 2004. Portions of restoration activities have been implemented, but the pipeline construction component has not been completed. The Water Delivery Option examined as Phase 1 in the SVCSD EIS includes the annual delivery of about 2,000 to 3,000 acre-feet of tertiary recycled water from the Sonoma Valley County Sanitation District for salinity reduction and subsequent agricultural production.

Impacts Identified

The Napa Salt Marsh Restoration Project EIR/EIS identified potential impacts associated with project implementation. The majority of significant impacts would occur as a result of construction activities. Construction impacts include degradation in water quality, disturbance of

special status species, release of hazardous materials, and increased dust. Other significant impacts from the project include removal of Soft Bird's Beak, erosion, creation of mosquito habitat, and potential for disturbance of human remains. Adverse cumulative impacts include hydrologic changes in the Lower Napa River, impacts to water quality, and colonization of invasive plant species. Beneficial cumulative impacts include establishment of sensitive plant communities, enhanced habitat suitability, increased sub-tidal habitat, and improved visual character.

Relationship to NBWRP

Napa River Salt Marsh Restoration Project EIR/EIS included construction of pumping and pipeline facilities from the SVCSD to provide recycled water to Pond 7 and 7A. These facilities are included in Phase 1 of the NBWRP. The provision of recycled water to these ponds is considered a beneficial impact, by providing a permanent water supply to provide dilution for bittern stored in these ponds.

Proposed facilities under the Napa Salt Marsh Restoration Project would be constructed within the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. Impacts associated with the restoration are primarily related to the construction of small scale facilities.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction, including potential impacts to wetland features along the pipeline route. However, the NBWRP would provide environmental enhancement benefits by providing a long-term water supply to dilute bittern currently stored in Ponds 7 and 7A. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Greater North Bay Area

The following projects are related to water supply, yet fall outside the scope of the proposed project. These projects do not spatially or temporally overlap the proposed project, and are not anticipated to have a cumulative impact in conjunction with the proposed project. They are summarized to provide a complete spectrum of current, ongoing, and future recycled water projects. The project, impacts, and relevance to the project are described below.

Town of Windsor Water Reclamation Master Plan for Treatment, Storage, and Disposal

In October 2000, an EIR for the Town of Windsor *Water Reclamation Master Plan for Treatment, Storage, and Disposal* was released. The project was developed to implement infrastructure requirements for wastewater treatment, storage, and disposal to provide services for development anticipated under the *Town of Windsor General Plan*. The project would provide a technical framework for selecting the most appropriate wastewater reclamations system. The EIR examined the environmental impacts associated with the various elements of the project, which include Geysers recharge, pump stations, storage facilities, irrigation infrastructure, treatment capacity, and water conservation.

Impacts Identified

The EIR identified potentially significant, but mitigable, impacts from construction activities, irrigation, and discharge. Significant but mitigable impacts to geology and soils, water quality, land use and recreation, traffic, air quality, noise, and hazardous materials are anticipated. Significant and unavoidable impacts to biological resources, and land use are also anticipated. Subsequently, if the *Water Reclamation Master Plan* was implemented at the same time as other construction projects, there would be cumulative impacts associated with erosion, cultural resource disturbance, construction noise, and visual obstruction. Due to the short-term duration of construction activities and incorporation of mitigation measures, both project impacts and cumulative impacts would be less than significant. Habitat loss due to pond construction would be a significant and unavoidable impact, and subsequently, a cumulative impact.

Relationship to NBWRP

Environmental review, certification, and adoption of the *Water Reclamation Master Plan* has been completed. Proposed facilities would be constructed outside of the North San Pablo Bay Watershed. Impacts are related to the construction of proposed facilities. Any impacts to water supply, water quality or water resources would occur outside of the North San Pablo Bay Watershed. Recognizing that water supply is imported into the North San Pablo Bay Watershed from the Russian River Basin, this project could contribute to beneficial impacts to Russian River supplies associated with the offset of potable supplies for irrigation.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the Town of Windsor Recycled Water Master Plan would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of wastewater treatment and water recycling facilities. However, all of those facilities are located outside of the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP would not contribute to other cumulative impacts when considered with infrastructure improvements occurring outside of the watershed, due to the lack of geographic proximity. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Wastewater Treatment Facility Projects

There are several wastewater treatment facility projects that have been proposed, approved or constructed for the existing Forestville County Sanitation District, Occidental County Sanitation, and the Russian River County Sanitation District in the west Sonoma County. The Cities of Cloverdale and Healdsburg have also proposed wastewater treatment modifications or expansions. These projects are examples of the wastewater infrastructure projects to improve or

increase treatment facilities in the Russian River Watershed. Any impacts related to these projects would occur outside of the North San Pablo Watershed. Some of these projects may also include recycled water elements in their implementation.

Impacts Identified

As previously noted for the Russian River County Sanitation District Equalization Basin Project, impacts anticipated to be associated with these types of projects include construction related impacts to geology and soils, water quality, land use and recreation, traffic, air quality, noise, and hazardous materials. Due to the short-term duration of construction activities and incorporation of mitigation measures, both project impacts and cumulative impacts would be less than significant. Long-term operational impacts would be associated with loss of habitat due to construction of new facilities, increased discharge to the Russian River, and increased energy use associated with new facilities. These types of impacts are anticipated to be reduced to a less than significant level through mitigation.

Relationship to NBWRP

Environmental review for these facilities is in various stages of completion. All five of the WWTPs are located outside of the North San Pablo Bay Watershed. Short-term impacts are related to the construction of proposed facilities, and would occur outside of the North San Pablo Bay Watershed and San Francisco Bay Area Air Basin. Any impacts to water supply, water quality or water resources would also occur outside of the North San Pablo Bay Watershed. However, recognizing that water supply is imported into the North San Pablo Bay Watershed from the Russian River Basin, these projects could alter the water quality of supplies generated in the Russian River due to increases in WWTP discharge to the Russian River System. Discharge from each WWTP is regulated by NPDES permits issued by the RWQCB. Compliance with permit requirements would be anticipated to reduce potential impacts to a less than significant level on a project by project basis.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of WWTP improvements operated by SCWA, the City of Cloverdale, Town of Windsor and City of Healdsburg and other WWTP operators within the Russian River Watershed would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of wastewater treatment and water recycling facilities. However, all of those facilities are located outside of the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP would not contribute to cumulative impacts when considered with infrastructure improvements occurring outside of the watershed, due to the lack of geographic proximity.

Urban and Suburban Construction Projects

There are a variety of suburban and urban residential, commercial, and roadway projects anticipated in the Marin, Sonoma, and Napa County areas (see **Table 4-1**). These are small to moderate scale local projects. In general, short-term construction impacts and permanent land use alteration, loss of habitat, and traffic impacts are associated with these types of local development projects. These projects are examples of the increase in development and infrastructure that is allowed under the local General Plans. The timing and implementation of these projects is uncertain at this time. However, for certain issue areas such as air quality, traffic, and water resources, these projects would have the potential to contribute to cumulative impacts in the event they are implemented during the construction timeframe of the NBWRP.

Impacts Identified

Construction of these projects would be expected to generate significant but mitigable impacts to geology and soils, water quality, biological resources, land use, air quality, noise, traffic, hazardous materials, cultural resources and aesthetics. These impacts would generally be reduced to a less than significant level through mitigation measures established on a project by project basis. However, some of these impacts may remain significant and unavoidable, on a project level and/or cumulative basis.

Relationship to NBWRP

Projects constructed within the same timeframe as the NBWRP would have the potential to contribute to cumulative impacts to geology and soils, water quality, biological resources, land use, air quality, noise, traffic, hazardous materials, cultural resources and aesthetics. These impacts would generally be reduced to a less than significant level through mitigation measures established on a project by project basis; however, some of these impacts may remain significant and unavoidable. In the event that construction of these projects coincide with the implementation of NBWRP projects, they would have the potential to contribute, both individually and collectively, to cumulative impacts within the issue areas noted above.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

It is anticipated that these facilities will be constructed within the North San Pablo Bay Watershed, and within the San Francisco Bay Area Air Basin. Therefore, the NBWRP would have the potential not contribute cumulative impacts when considered with infrastructure improvements occurring within the watershed and airshed. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Regulatory and Other Cumulative Projects

303 (d) Listing of impaired waterways in Marin, Sonoma, and Napa Counties

Water quality in California is regulated on both state and local levels. Under the Clean Water Act, the U.S. Environmental Protection Agency (USEPA) is responsible for water quality management and has delegated this authority to the State Water Resource Control Board (SWRCB). Section 303(d) of the Clean Water Act requires SWRCB to identify water bodies that do not meet water quality objectives. Each state submits an updated 303(d) list biannually. The list identifies impaired waterbodies, the pollutant or stressor causing the impairment, and establishes a priority for developing a control plan, or a Total Maximum Daily Load (TMDL). A TMDL is a program that has been developed to recover 303(d) list waterbodies, and defines the total amount of material a waterbody can regularly assimilate and still maintain water quality at levels that protects beneficial uses designated for that waterbody (SWRCB, 2008). SWRCB delegates this responsibility in part to the RWQCBs. A water quality control plan and an implementation plan are developed for each water body and pollutant/stressor.

Waterways in Marin County are regulated by the San Francisco Bay RWQCB. Within the project area in Marin County, the Petaluma River, San Rafael Creek, San Antonio Creek, Gallinas Creek, and Novato Creek appear on the currently applicable 2006 303(d) list of impaired water bodies. The Petaluma River is listed for diazinon, nutrients, pathogens, sediment, and nickel. The sources of these pollutants vary by pollutant. TMDLs for the Petaluma River are scheduled to be completed from 2005 to 2019. Urban runoff and storm sewers are the potential sources of diazinon in San Rafael Creek, San Antonio Creek, Gallinas Creek, and Novato Creek.

Waterways in southern Sonoma County and the San Pablo Bay Watershed are regulated by both the San Francisco Bay and North Coast RWQCBs. Rivers and streams located within the project area that appear on the currently applicable 2006 303(d) list of impaired water bodies include Sonoma Creek and the Petaluma River. Sonoma Creek is listed for contaminated pathogens, nutrients, and sedimentation/ siltation. Potential nutrient sources include agriculture, construction/land development, and urban runoff/ storm sewers. There are separate existing TMDLs which examine the water quality problem, identify the source of water impairment, and specify actions to create solutions (RWQCB, 2007). They identify actions that, once implemented, should reduce pathogens, nutrients, and sediment and contribute to the restoration and support of fisheries. Waterways in northern Sonoma County, including the Russian and Eel Rivers, are regulated by the North Coast RWQCB. Russian River is widely impaired by sedimentation and siltation, among other pollutants as a result of agricultural practices, channel erosion, highway, road, or bridge construction, hydromodification, and a range of other potential sources. The Lower, Middle, and Upper reaches of the Eel River are impaired by sedimentation and siltation as a result of range of pollutants from a combination of sources such as grazing, silviculture, and removal of riparian vegetation, among other sources. Water temperature is also impaired as a result of erosion, hydromodification, removal of riparian vegetation, and stream bank modification.

The Napa River in Napa County is regulated by the San Francisco Bay RWQCB. The Napa River, located within the project area, appears on the currently applicable 303(d) list for nutrients, pathogens, and sedimentation/siltation. The sources of these pollutants are vary by pollutant, and are indicated in Table 3.4-1 in **Section 3.4, Water Quality**. TMDLs for the Napa River are scheduled to be completed from 2006 to 2008.

Listing of waterways outside of the North San Pablo Bay Watershed would not be anticipated to contribute to cumulative impacts, as these waterways are not tributary to North San Pablo Bay. However, recognizing that water supply is imported into the North San Pablo Bay Watershed from the Russian River Basin, listing of both the Russian River and Eel River systems as impaired, and the implementation of additional regulatory measures, including establishment of TMDLs, could alter the water quality of supplies generated in the Russian River and imported into the NBWRP service area. However, these impacts would be anticipated to be beneficial, as water quality in these systems would be improved.

Impacts Identified

Implementation of TMDLs would be anticipated to address pollutant loading in local water bodies through a number of point-source and non-point source control measures. The TMDL process is a tool for implementing water quality standards and is based on the relationship between pollutant sources and in-stream water quality conditions. The TMDL establishes the maximum allowable loadings of a pollutant that can be discharged to a water body while still meeting applicable water quality standards. The TMDL provides the basis for the establishment of water quality-based controls. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The TMDLs allocation calculation for each water body must include a margin of safety to ensure that the water body can be utilized for its State–designated uses. Additionally, the calculation must account for seasonal variation in water quality (USEPA 2002).

TMDLs are intended to address all significant stressors which cause or threaten to cause impairments to beneficial uses, including point sources (e.g., urban water discharges), nonpoint sources (e.g., runoff from fields, streets, range, or forest land), and naturally occurring sources (e.g., runoff from undisturbed lands). TMDLs may be based on readily available information and studies. In some cases, complex studies or models are needed to understand how stressors are causing water body impairment. In many cases, simple analytical efforts provide an adequate basis for stressor assessment and implementation planning. TMDLs are developed to provide an analytical basis for planning and implementing pollution controls, land management practices, and restoration projects needed to protect water quality. States are required to include approved TMDLs and associated implementation measures in State water quality management plans. Within California, TMDLs are implemented through RWQCB Basin Plans. The basin planning process has been certified as functionally equivalent to and therefore exempt from CEQA's requirement to prepare and EIR or a Negative Declaration. The RWQCB's regulations at Title 23 California Code of Regulations. § 3775 et. seq. describe the environmental documents required for planning actions. However, the implementation of TMDLs is anticipated to be largely beneficial to water quality.

Relationship to NBWRP

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Implementation of the NBWRP would reduce the amount of treated wastewater discharged into tributaries of North San Pablo Bay. As noted in **Section 3.4**, **Water Quality**, it is anticipated that this reduction in discharge would have an incremental, but beneficial, effect by reducing the volume of treated wastewater discharged to tributaries of North San Pablo Bay. Therefore, the NBWRP's contribution to potential cumulative impacts related to water quality in impaired water bodies within the North San Pablo Bay Watershed is considered beneficial.

Gravel Mining and the Aggregate Resources Mining Plan

Gravel mining is a common practice along the middle reach of the Russian River. Demand for aggregate resources is expected to remain constant for the next 20 years, but the types of resources demand is expected to change. Policies in the Aggregate Resources Mining (ARM) Plan phase out terrace pit mining and will not permit new terrace pit mining proposals after 2006, but still allow instream mining to continue. There are currently 18 terrace sites, however implementation of the ARM Plan limits extraction to a sustainable level. The Sonoma County ARM Plan, adopted in 1981 and updated in 1994 is a document that provides the regulatory guidelines for management of aggregate mining. It consisted of a program EIR on rock and gravel mining within the County, and a specific management plan to regulate those resources. The ARM Plan includes:

- the Aggregate Mining Plan: lands available for future supplies of aggregate material
- Managed Resources/ Open Space Plan: protection of riparian habitats, reclamation, and agricultural land preservation
- Identification of mining operations, including terrace mining, carried out in flood plain

Impacts Identified

Gravel mining causes environmental impacts like erosion, incision of tributaries, and channelization.

Relationship to NBWRP

The ARM Plan may propose to continue, reduce, or eliminate mining of gravel and sand aquifer and terraces of the Russian River. All mining activities would occur outside of the North San Pablo Bay Watershed. However, recognizing that water supply is imported into the North San Pablo Bay Watershed from the Russian River Basin, implementation of gravel mining under the ARM Plan could affect water quality of supplies imported into the North San Pablo Bay Watershed.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Implementation of AB 2121 - Policy for Maintaining Instream Flows

To protect flows that support threatened and endangered anadromous fish, National Marine Fisheries Service (NMFS) and the CDFG jointly developed "Guidelines for Maintaining Instream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Coastal Streams" for new applications in 2002. On September 30, 2004, the Legislature responded to pressure from conservation groups and enacted Water Code section 1259.4 [AB 2121 (Stats. 2004, Ch. 943, §§1-3)], which requires the SWRCB to adopt a policy for principles and guidelines to maintain instream flows in coastal streams within the counties of Marin, Sonoma, Napa, Mendocino and Humboldt by January 2008. The geographic scope also includes the Mattole River to San Francisco and coastal streams entering North San Pablo Bay. Shortly after AB 2121 was signed, two conservation groups, Trout Unlimited and Peregrine Audubon society filed a petition to assist the SWRCB in implementation. To satisfy AB 2121 commitments, SWRCB developed Resolution 2005-0070, and drafted the "Policy for Maintaining Instream Flows" (2007).

The purpose of the instream flow requirements established under this policy is to protect native fish populations and fishery resources. By implementing seasonal limits on diversions, minimum bypass flow requirements, and limits on maximum cumulative diversions rights within a watershed, the policy encourages more natural hydrograph responses, which would be more conducive to the survival of anadromous fish. The SWRCB will consider whether to include enforcement provisions in the AB 2121 streamflow protection policy.

Identified Impacts

It is anticipated that the policy would increase wintertime flow and duration in local streams by requiring a minimum bypass flow at local diversion points. This would have beneficial impacts on biological resources, riparian habitat, fisheries, water quality and water resources.

Relevance to NBWRP

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation. This includes local surface water supplies that are impounded from streams and used for irrigation. Provision of recycled water by the NBWRP would provide recycled water offset for supplies that may currently be diverted from instream flow. As such, the

NBWRP would have a beneficial contribution to cumulative increases in instream flow associated with implementation of AB 2121.

Title XVI Water Reuse Program

The United States Bureau of Reclamation's (Reclamation) Title XVI Water Reuse Program, was established in response to droughts for six consecutive years during the 1980s and 1990s in the western United States. Under Title XVI, the Secretary of the Interior is responsible for identifying opportunities for water reuse. The purpose of Title XVI is to supplement the water supply by reclaiming, recycling and reusing water from agricultural drainage, wastewater, or other low quality water supplies. Municipal and irrigation district projects in the seventeen western states are eligible for Title XVI funding. An original rationale was to help Southern California reduce their reliance on Colorado River water. There are 33 projects under Title XVI, mainly concentrated in Southern California, but also located in Northern California. A feasibility study for each project must be approved by the Secretary of the Interior prior to enrollment in the program. Projects are approved and evaluated on an individual basis, and they are eligible for federal grants for a maximum of $20 million or up to 25 percent of the total project cost. Participation in Title XVI grants the authority to design and construct reclamation and reuse facilities, and deliver water for irrigation, groundwater recharge, wildlife enhancement, industrial, and recreational purposes. This is only the active federal program providing local municipalities and irrigation districts with financial and technical assistance for the design and operation of recycled water facilities. Other funding is available through the Clean Water Act and the Safe Drinking Water Act State Revolving Fund.

Relationship to NBWRP

NBWRP is within the Bureau of Reclamation's Title XVI Program, and as such, is eligible for funding under the program. Reclamation has established guidelines for implementing the Title XVI program and applying it to projects. This process will be used by Reclamation in distributing funds under Title XVI. The level of available funding is established by Congress, and is not unlimited. Therefore, each of the projects that are funded, will, by definition of the Title XVI program, affect the availability of funding for other projects.

In the event other projects are not funded, this could contribute to two general cumulative effects relating to these other projects. First, the construction and operational impacts of these projects would be avoided. Second, the beneficial impacts of these projects, primarily related to offset of potable water supplies through the use of recycled water, would not occur. It should be noted that participation in the Title XVI program by NBWRA does not preclude other projects from being funded under Title XVI, at the discretion of Reclamation and the U.S. Congress. As such, although authorization and appropriation of funds to NBWRA Member Agencies could, by definition, reduce the amount of funding available under the Title XVI for other projects, such appropriations, both individually and cumulatively, are subject to the discretionary action of the Reclamation and the U.S. Congress. Therefore, the NBWRP's contribution to this cumulative effects is no less, and no greater, than any other project participating in the program. Therefore, this contribution is not cumulatively considerable.

4.3 Description of Cumulative Effects

This section reviews the potential cumulative effects of constructing the NBWRP concurrently with other Sonoma, Napa, and Marin County projects. Additionally, the geographic scope of potential cumulative impacts varies by issue area, and is defined below. Since the Action Alternatives represent incremental development of recycled water facilities, the cumulative impact analysis is based on the "worst case scenario" of all of the increments combined. For example, the cumulative impacts associated with construction will increase incrementally with each alternative.

4.3.1 Construction Related Impacts

Impacts 4-1: Construction-related Cumulative Impacts. Concurrent construction of several projects within the Sonoma, Napa, and Marin County areas could result in cumulative short-term impacts associated with construction activities. If implemented at the same time as other construction projects, construction of facilities under all three of the alternatives could contribute to potential short-term cumulative effects associated with erosion, cultural resource disturbance, disturbance of adjacent land uses, traffic disruption, dust generation, construction noise, aesthetics, air quality, biological resources, hazardous materials, water quality, public services and utilities. However, construction-related impacts would not result in long term alteration of the environment, and could be mitigated to less than significant levels through the use of mitigation measures identified throughout Chapter 3. (Less than Significant with Mitigation)

Construction of the specific facilities under the selected alternative would potentially coincide with other proposed infrastructure projects in the project area. Due to their short-term nature, and the inclusion of appropriate mitigation measures as established in **Chapter 3.0**, NBWRP's contribution to cumulative impacts is not considerable. The following discussion reviews construction related impacts, and the potential cumulative contribution of both the Proposed Action, and the other projects identified within the Sonoma, Napa, Marin County area.

Water Quality

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could result in increased erosion and subsequent sedimentation and stormwater pollution, with impacts to water quality in downstream water bodies and/or storm drain capacity. In particular, degradation of surface waters could result from construction activities, including construction of pipelines, pump stations, storage, and WWTP improvements. Additionally, discharge of groundwater, release of fuels, or release of other hazardous materials associated with construction activities could degrade water quality.

SWRCB has issued a General NPDES Permit to address potential impacts related to construction activities. This General Permit has been issued to ensure that individual projects implement its fair share of mitigation measures designed to alleviate cumulative impacts to water quality. The General Permit mandates that projects disturbing greater than one acre develop and implement a

Storm Water Pollution Prevention Plan (SWPPP) identifying BMPs to reduce erosion of disturbed soils and release of hazardous materials into water courses. Preparation of the SWPPP and compliance with the measures identified in the SWPPP would ensure compliance with state regulatory policies to minimize the potential for water quality impacts from construction activities associated with the proposed project. As such, the potential contribution to water quality impacts associated with the proposed project would be rendered less than cumulatively considerable through implementation of **Measures 3.4-1a** as identified in **Section 3.4, Water Quality** and **Mitigation Measure 4.1a** below.

Biological Resources

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could result in temporary impacts to biological resources in the project area. Potential impacts during construction include temporary disturbance and/or permanent loss of wetlands and other Waters of the United States (U.S.), under regulatory jurisdiction of the USACE (CWA Section 404), RWQCB (CWA Section 401), and CDFG (Fish and Game Code Section 1601-1616). These impacts are limited to areas along the recycled water pipelines and at the proposed storage reservoir sites. Potential jurisdictional features are identified in **Section 3.5, Biological Resources**.

Impacts to Western Pond turtle, California red-legged frog, Chinook, and steelhead could occur during construction operations. Construction could also temporarily impact nesting habitat for golden eagle and Swainson's hawk. Additional impacts due to construction would affect common plant and animal species. All of these impacts will be mitigated to a less than significant level upon project completion by the implementation of mitigation measures in **Section 3.5, Biological Resources** and **Mitigation Measure 4.1a** below. As such, NBWRP's contribution to short-term impacts to biological resources would not be cumulatively considerable.

Land Use

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could temporarily generate noise, dust, visual intrusion, and construction traffic as well as street and access disturbance that could affect adjacent land uses. The sensitive receptors that are adjacent to components of the proposed project include single- and multi-family residences, schools, and churches (See **Section 3.9, Noise, Section 3.7 Traffic,** and **Section 3.8 Air Quality**). The NBWRP's contribution to this cumulative disturbance includes construction activities associated with the recycled water pipeline construction, excavation for the operational and capacity storage reservoirs, and grading and construction for booster pump stations. As noted in **Section 3.6, Land Use, Planning and Recreation**, this construction related disturbance to surrounding land uses would not be considered significant on an individual project basis, due to the temporary nature of construction activities, and the mitigation measures identified in **Section 3.6, Land Use Planning and Agriculture**, to minimize these impacts to the degree feasible. When considered in combination with the other Sonoma, Napa, and Marin

County area projects identified, the proposed project's disturbance of land uses adjacent to the project area would not result in a cumulatively considerable contribution.

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would also result in the temporary disruption of recreational resources, such as parks and bikeways, due to noise and construction traffic as described in **Section 3.13, Recreation**. Construction of pipelines would occur primarily in roadway right-of-ways along existing bike trails. The disruption to such recreational facilities would be temporary, as the pipeline network would be underground and surface restoration after construction would return disrupted areas to their original condition. Temporary disturbances would be mitigated to a less than significant level with the mitigation identified in **Chapter 3.0** and **Mitigation Measure 4.1a** below. As such, the contribution of the proposed project to cumulative recreational resource impacts would not be considerable.

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would also result in the temporary disruption of agricultural resources, as identified by the Farmland Mapping and Monitoring Program. Construction of the project would disturb, directly and indirectly, Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Grazing Land, and farmland under Williamson Act contract. Due to the nature of this disturbance, however, the adverse cumulative impact is less than significant. Over the long term, there is potential for a beneficial cumulative impact related to agricultural production as a result of availability of a more sustainable water supply that would be more resilient during drought conditions.

Transportation and Traffic

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would intermittently and temporarily generate increases in: vehicle trips by construction workers and construction vehicles on area roadways, traffic delays, and potential traffic safety hazards for vehicles, bicyclists and pedestrians on public roadways. Construction may temporarily restrict access for general traffic and emergency vehicles, will increase parking demands in the vicinity of the project and may cause permanent damage to road pavement. Construction–related impacts to traffic associated with the NBWRP would be short-term. As identified in **Section 3.7, Transportation and Traffic**, the proposed pipeline routes may directly overlap with projects that would occur along roadways identified in **Table 4-1**, including roadway improvements proposed by Sonoma County Transportation and Public Works Department (State Route 12, Adobe Road); Caltrans (Duhig Road); City of Napa (various roadways); and the City of Novato Public Works Department (Olive Avenue, Diablo). The cumulative impact on traffic could be significant. This impact would be reduced to less-than-significant levels by implementation of **Mitigation Measure 4.1a**. Further, as noted in **Section 3.7, Transportation and Traffic**, implementation of mitigation measures described in

Section 3.7, including preparation of a Traffic Control Plan, would reduce potential impacts to a less than significant level. Therefore, NBWRP contribution to construction traffic impacts would not be cumulatively considerable.

Air Quality

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions. The project could also generate greenhouse gas (GHG) emissions; including those associated with construction equipment, increases in vehicle traffic, and secondary operational increases resulting from electricity use would overlap with similar sources of GHG emissions from other projects. These potential impacts contribute to overall impacts to the San Francisco Bay Area air basin in which the project is located. As described in **Section 3.8, Air Quality**, the Bay Area air basin is classified as non-attainment for State PM10 and PM2.5[5] standards as well as State 1- and 8-hour ozone standards. With respect to federal standards, the BAAQMD is classified as marginal non-attainment for the 8-hour ozone standard, which is treated as a significant cumulative impact for purposes of this analysis. However, as discussed below and in **Section 3.8, Air Quality,** increases in air pollutant and GHG emissions from these sources associated with NBWRA projects would be minimal, and the contribution from NBWRP would not result in a significant increase in cumulative GHG emissions.

Project construction would generate particulate matter and other criteria pollutants, primarily through excavation activities, construction equipment exhaust, haul truck trips, and related construction worker commute trips. This impact would be temporary on a local level, lasting through the duration of the project. Construction activities for this project would occur in the immediate vicinity of the facility site under excavation at a given time. As indicated above, emissions from construction vehicles will potentially impact nearby residential uses. On a regional level, emissions resulting from vehicles associated with the project would incrementally add to regional atmospheric loading of ozone precursors during the short-term construction period. BAAQMD Guidelines recognize that construction equipment emits ozone precursors, but indicate that such emissions are not expected to impede attainment or maintenance of ozone standards in the Bay Area (BAAQMD, 1999). Similarly, mitigation will be required to control respirable particulate matter (PM10) emissions rendering their impacts less than significant. As the BAAQMD's emissions inventory and associated regional air quality plan account for construction-related emissions of criteria pollutants, they are not expected to impede attainment or maintenance of ozone or carbon monoxide standards in the Bay Area. As such, the potential contribution to air quality impacts associated with the Project would be rendered less than cumulatively considerable through implementation of **Measures 3.8-1a and 3.8-1b** identified in **Section 3.8, Air Quality** and **Mitigation Measure 4.1a** below.

[5] Particulate matter that have a size 10 microns and 2.5 microns.

Noise

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would generate short-term noise associated with construction equipment and construction traffic. Construction activities are anticipated to temporarily and intermittently raise noise levels above ambient levels. With implementation of **Mitigation Measure 4.1a** below and mitigation measures identified in **Section 3.8, Noise,** the proposed project's contribution to noise impacts would be rendered less than cumulatively considerable.

Public Services and Utilities

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could result in temporary, planned or accidental disruption to utility services, and require short-term police and fire protection services to assist in traffic management or in the event of an accident. No effects to utility customer service are anticipated; therefore, the proposed project would not contribute to cumulative effects related to utilities.

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would have the potential to contribute to service demands for police and fire services in the event of an accident. For NBWRP, this need would be limited to safety inspection and fire-suppression during construction. Construction of the recycled water pipelines would be primarily limited to existing right-of-way, but could involve temporary road closures, lane closures, and other traffic controls that could interfere with an adopted emergency response plan or emergency evacuation plan. No long-term public service needs would be associated with project implementation, and no permanent road closures would be required. Implementation of mitigation measures in **Section 3.11, Public Services and Utilities**, and **Mitigation Measure 4.1a** below would reduce impacts to utilities and emergency service providers to less than significant. As such, the NBWRP's contribution to the potential for disruption to public services would not be cumulatively considerable.

Hazardous Materials

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could result in an increase in risk of exposure (human and the environmental) to hazardous materials, including through excavation, spills or releases. As identified in **Section 3.10, Hazardous Materials**, this potential is considered low, given review of available information and existing land uses along the pipeline corridor and at facility site locations. Implementation of mitigation measures in **Section 3.10, Hazardous Materials**, and **Mitigation Measure 4.1a** below will reduce potential impacts to a less than significant level on a project basis. As such, the NBWRP's contribution to the potential for disturbance of hazardous materials would not be cumulatively considerable.

Aesthetics

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** located within the same viewsheds would result in short-term visual impacts during construction. Construction activities would require the use of heavy equipment and storage of materials at the construction zone. During construction, excavated trenches and stockpiled soils, pipe, and other materials within the construction easement would constitute negative aesthetic elements in the visual landscape that would directly affect the area. The NBWRP would result in the temporary disturbance of views along roadways and of agricultural fields during pipeline construction

Excavated trenches, stockpiled soil, and other materials within the construction area would constitute negative aesthetic elements in the visual landscape. As noted in **Section 3.14, Aesthetics**, these impacts would be temporary during project construction, and would not be considered significant on a project basis. Following construction, the recycled water pipelines would be located entirely below-ground and would be visually unobtrusive. Pumping stations would be located below grade to the degree feasible, and integrated with the surrounding visual character. Improvements to provide tertiary treatment and storage would occur onsite at existing WWTPs, and would not alter the existing visual character of those facilities. Disturbed areas will be restored to their previous state upon project completion. Due to the limited nature of these improvements, views from residential areas and recreational facilities would not be adversely affected. Implementation of **Measure 3.14.1a** and **Mitigation Measure 4.1a** below would reduce long-term visual impacts to less-than-significant levels. As such, the NBWRP's contribution to the potential for disruption to visual resources and would not be cumulatively considerable.

Mitigation Measures

Mitigation Measure 4.1: Member Agencies shall coordinate construction activities along selected alignments to identify overlapping pipeline routes, project areas, and construction schedules. To the extent feasible, construction activities shall be coordinated to consolidate the occurrence of short-term construction-related impacts.

Impact Significance after Mitigation: Less than Significant.

4.3.2 Long-Term Impacts

Impact 4.2: Cumulative Long-term Impacts resulting from Seismic Events. Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term risk of upset impacts related to groundshaking and surface fault rupture during major earthquakes. (Less than Significant)

Components of the NBWRP could be exposed to damage from earthquakes and geologic hazards. In the event of a catastrophic failure, areas downstream of pipelines or storage facilities could

experience localized flooding. Groundshaking and surface fault rupture during major earthquakes on nearby active faults could cause structural damage or collapse of facilities. Ground failure, including slope failure, differential settlement, loss of bearing strength, could occur beneath facilities, resulting in structural or mechanical damage and secondary effects related to recycled water release.

The project area is situated along the Rodgers Creek Fault, which is anticipated to experience significant seismic activity by 2032 (Rodgers, 2006). Failure of facilities that are built as part of the NBWRP, in conjunction with the failure of other projects in the area, could result in potential disruptions to irrigation supplies. Considering that geohazards are unavoidable and unpredictable, NBWRP facilities would to be exposed to damage from earthquakes and geologic hazards. Implementation of standard design criteria and appropriate design measures, would reduce this impact to less than significant. Therefore, the NBWRP's contribution to this impact would not be cumulatively considerable.

Impact 4.3: Cumulative Long-term Impacts on Water Resources. Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term impacts to water resources, water quality, and flooding. (Less than Significant)

Construction of the NBWRP, concurrent with other projects with Sonoma, Napa, and Marin Counties, and other water and wastewater infrastructure projects occurring within the North San Pablo Bay Watershed, would potentially contribute to surface water, water quality, and flooding impacts due to alterations of drainage patterns and increases in impervious surface areas. Increases in impervious surface area would be limited to treatment facilities and pump stations at existing WWTPs, which would be integrated into existing drainage infrastructure. Pump stations located along proposed pipeline routes would be limited to 1,000 square feet per facility. These facilities would not substantially contribute to runoff within the watershed during storm events. Therefore, the NBWRP's contribution to cumulative impacts to water resources, water quality, and flooding are not cumulatively considerable.

Implementation of NBWRP would reduce the amount of treated effluent discharged to tributary to the North San Pablo Watershed. This would have an incremental, but beneficial cumulative impact on water quality in receiving waters.

Implementation of NBWRP would offset the use of potable water supplies for irrigation, including imported surface water supplies, groundwater, and local surface water supplies. This would have a beneficial cumulative impact on water supply.

Impact 4.4: Cumulative Long-term Impacts on Groundwater. Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term impacts to groundwater resources and groundwater quality. (Less than Significant)

Construction of the NBWRP, concurrent with other projects with Sonoma, Napa, and Marin Counties, and other water and wastewater infrastructure projects occurring within the North San Pablo Bay Watershed, would potentially contribute to alterations in groundwater due to increases in impervious surface areas and offset of groundwater supplies used for irrigation. Increases in impervious surface area would be limited to treatment facilities and pump stations at existing WWTPs, which would be integrated into existing drainage infrastructure. Pump stations located along proposed pipeline routes would be limited to 1,000 square feet per facility. These facilities would not substantially alter groundwater recharge areas. Therefore, the NBWRP's contribution to cumulative impacts to groundwater recharge are not significant.

Implementation of the NBWRA would offset the use of potable water supplies for irrigation, including imported surface water supplies, groundwater, and local surface water supplies. As identified in **Section 3.3, Groundwater Resources,** this would have a beneficial cumulative impact on groundwater pumping, particularly in the MST Area and Sonoma Valley.

Impact 4.5: Cumulative Long-term Impacts on Biological Resources. Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area, and other water and wastewater infrastructure projects, could result in cumulative long-term impacts to biological resources. (Less than Significant with Mitigation)

Sensitive Marsh Bird and Mammal Species

The SVCSD Napa Salt Pond Pipeline has the potential to impact marsh habitat for California black rail, California clapper rail, and western snowy plover. As noted in **Section 3.5, Biological Resources**, implementation of **Option B** for the SVCSD Napa Salt Pond Pipeline would substantially reduce the potential for these impacts, by implementing a route that would avoid marshland areas along the majority of its route. Construction of pipeline from the existing parking area on Duerig Road to the outfall location (approximately 0.7 miles) would still have the potential for short-term construction related impacts to sensitive marsh bird and mammal species. Implementation of **Mitigation Measures 3.5.7** established in **Section 3.5, Biological Resources**, which includes avoidance of the nesting season (February 1 through September 14), minimization of impact area, pre-construction survey, construction crew training, and construction monitoring, would reduce potential impacts to sensitive marsh bird species to a less than significant level. Similarly, implementation of **Mitigation Measures 3.5.10** established in **Section 3.5, Biological Resources**, which includes minimization of the construction area, establishment of exclusion fencing, clearance of the construction area though pre-construction trapping and relocation of salt marsh harvest mice and ornate shrew individuals, construction crew training, and construction

monitoring, would reduce potential impacts to a less than significant level. Permanent loss of potential marsh bird and mammal habitat for the NBWRP would be limited to the construction of the pipeline from the existing roadway to the outfall structure, estimated at 2,000 square feet (0.04 acre), and the outfall area, estimated to be approximately 400 square feet (0.01 acre). As necessary, compensatory mitigation would be established as part of the USACE 404 Permit and CDFG 1600 permitting processes.

Other projects within the Napa Salt Pond area could also contribute to disruption or loss of salt marsh habitat, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of salt marsh impacts. Due to the limited potential NBWRP's temporary and permanent impacts, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to impacts to marsh habitat for California black rail, California clapper rail, and western snowy plover would be rendered less than cumulatively considerable.

Burrowing Owl and Nesting Birds

The burrowing owl is a federal Species of Concern and California Species of Special Concern, and use grassland areas with ground squirrel burrow associations. NBWRP pipelines, including LGVSD and SVCSD pipelines, would have the potential to impact habitats used by burrowing owls. Facility construction would also have the potential to temporarily impact raptors and nesting birds protected under the California Fish and Game Code and the federal Migratory Bird Treaty Act. Implementation of **Mitigation Measures 3.5.8 and 3.5.9** established in **Section 3.5, Biological Resources**, which includes avoidance of the nesting season (February 1 through August 31), minimization of impact area, pre-construction survey, construction crew training, and construction monitoring, would reduce potential temporary impacts to a less than significant level.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of burrowing owl habitat and nesting bird habitat, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of habitat. Due to the limited potential NBWRP's temporary impacts, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to impacts to burrowing owl, raptors, and nesting birds protected under the California Fish and Game Code and the Migratory Bird Treaty Act would be rendered less than cumulatively considerable.

Sensitive Mammal Species

The NBWRP has the potential to impact habitat for sensitive bat species, primarily at bridge crossings of streams, and American badger habitat, which can occur along pipeline routes and facility locations. Implementation of **Mitigation Measures 3.5.11** established in **Section 3.5, Biological Resources**, which includes pre-construction survey and avoidance of roosts, would reduce potential impacts to sensitive bat species to a less than significant level. Similarly,

implementation of **Mitigation Measures 3.5.12** established in **Section 3.5, Biological Resources**, which includes pre-construction survey and passive relocation of badger dens that may occur along pipeline or facility locations, would reduce potential temporary impacts to a less than significant level.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of sensitive bat species or American badgers, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of habitat. Due to the limited potential NBWRP's temporary impacts, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to sensitive bat species and American badger would be rendered less than cumulatively considerable.

Sensitive Plant Species and Heritage Trees

The NBWRP has the potential to impact the following listed and special-status plants, which have been identified as having at least a low potential to occur in the NBWRP area: Sonoma sunshine, soft bird's beak, Contra Costa goldfields, two-fork clover, franciscan onion, Napa false indigo, Mt. Tamalpais manzanita, narrow-anthered California brodiaea, Point Reyes bird's beak, dwarf downingia, Napa western flax, delta tule pea, legenere, Mason's lilaeopsis, Suisun marsh aster, saline clover, and oval-leaved viburnum. Additionally, construction of facilities may impact heritage trees as defined by County tree ordinances. Implementation of **Mitigation Measures 3.5.13 and 3.5.14** established in **Section 3.5, Biological Resources**, which includes pre-construction survey, avoidance, restoration, and compensatory mitigation as appropriate, would reduce potential impacts to rare plant species to a less than significant level.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of rare plant habitat and heritage trees, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of habitat. Due to the limited potential for NBWRP's temporary impacts, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to impacts to rare plants and heritage trees would be rendered less than cumulatively considerable.

Wetland Habitat

The NBWRP Phase 1 would have the potential to impact 71 drainages; of these 54 are unnamed tributaries, most of which are likely to be ephemeral drainages that are dry most of the year. It is estimated that implementation of Phase 1 would result in temporary impact to 0.52 acres of jurisdictional wetland, and 2.8 acres of CDFG jurisdictional features. Under the Fully Connected System, 213 drainages would have the potential to be affected.

Implementation of projects within the North San Pablo Bay Watershed would have the potential to impact wetland features. These projects have completed or will be required to complete the

appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of wetlands and sensitive habitats.

Due to the loss of wetland habitat, implementation of the NBWRP Phase 1 would contribute to the cumulative temporary disturbance of jurisdictional wetlands (0.5 acres) and associated riparian area (2.8 acres). As required by **Measure 3.5.1**, design measures would be incorporated to avoid wetland impacts the extent feasible, either through avoidance or through use of trenchless technology. As necessary, compensatory mitigation would be established as part of the USACE 404 Permit and CDFG 1600 permitting processes. Due to the limited wetland loss, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to wetland loss would be rendered less than cumulatively considerable.

CRLF and Western Pond Turtle

As noted above, implementation of the NBWRP Phase 1 would have the potential to affect 71 drainages, with potential impacts to California red-legged frog and western pond turtle upland and aquatic habitats. As noted above, **Measure 3.5.1** requires that design measures be incorporated to avoid wetland impacts the extent feasible, either through avoidance or through use of trenchless technology. Therefore, it is anticipated that temporary impacts to habitat for these species at stream crossings would be avoided. As necessary, compensatory mitigation would be established as part of the USACE 404 Permit and CDFG 1600 permitting processes. Due to the limited impacts to stream crossings, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to temporary impacts to California red-legged frog and western pond turtle upland and aquatic habitats species, would be rendered less than cumulatively considerable.

Special Status Fish, Invertebrates and California Freshwater Shrimp

As noted above, implementation of the NBWRP Phase 1 would have the potential to affect 71 drainages, with potential impacts to special-status fish species and California Freshwater Shrimp. Construction of Proposed Project facilities could affect special-status invertebrate or fish species including central California coast steelhead, Chinook salmon, California freshwater shrimp, Pacific lamprey, and Sacramento splittail, or designated critical habitat for steelhead. Additionally, habitat areas for Riksecker's water scavenger beetle and California brackishwater snail could be affected. As noted above, **Measure 3.5.1** requires that design measures be incorporated to avoid wetland impacts the extent feasible, either through avoidance or through use of trenchless technology. Therefore, it is anticipated that temporary impacts to habitat for these species at stream crossings would be avoided. As necessary, compensatory mitigation would be established as part of the USACE 404 Permit and CDFG 1600 permitting processes. Due to the limited impacts to stream crossings, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of NBWRP to temporary impacts to sensitive fish species, sensitive invertebrate species and California freshwater shrimp would be rendered less than cumulatively considerable.

Long-term operation impacts of NBWRP would include the reduction of treated effluent discharge into tributaries of North San Pablo Bay. When considered with other discharge inputs into North San Pablo Bay, both from point and non-point sources, this is anticipated to have an incremental, but beneficial, impact to water quality and sensitive species habitat. Therefore, the NBWRP's contribution to cumulative impacts to sensitive fish species, special status invertebrate species, and California freshwater shrimp habitat is less than significant.

Mitigation Measures

Mitigation Measures in **Section 3.5, Biological Resources**.

Impact Significance after Mitigation: Less than Significant.

Impact 4.6: Cumulative Long-term Impacts on Land Use. Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term impacts to land use and agricultural resources. (Less than Significant)

The NBWRP has the potential to impact farmland designated as prime, statewide importance, and unique. Implementation of pipelines, pump stations, and storage facilities would have the potential for temporary, or in some cases, permanent loss of agricultural lands. As discussed in Section 3.6, Land Use and Agricultural Resources, it is anticipated that these impacts can be avoided through siting of facilities in previously disturbed areas, such as roadways. Implementation of **Mitigation Measures 3.6.3** established in **Section 3.6, Land Use and Agricultural Resources**, which includes measures to avoid permanent impacts to farmlands associated with pipeline installation.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of farmlands, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of farmlands. Implementation of the NBWRP would provide recycled water as an irrigation supply to offset potable surface and groundwater supplies currently used for this purpose. Recycled water represents a reliable, local and drought-proof irrigation supply that supports the long-term viability of all agricultural practices within the region. Due to the limited potential for NBWRP's temporary impacts, and the mitigation measures established in **Section 3.6, Land Use and Agricultural Resources**, the contribution of the NBWRP to impacts regarding the loss of farmlands would be rendered less than cumulatively considerable.

Impact 4.7: Cumulative Impacts from Greenhouse Gas Emissions. Concurrent operation of the NBWRP with other projects could result in a cumulatively considerable net increase in GHG emissions or criteria pollutants for which the region is in non-attainment under applicable standards. (Less than Significant)

Greenhouse Gases. NBWRP would result in long-term emissions associated with distribution of recycled water. As noted in Section 3.8, Air Quality, the California Air Resources Board (CARB) has recommended that industrial projects that meet interim CARB performance standards for construction and transportation emissions, and emit no more than 7,000 metric tons of CO_2e per year from non-transportation related GHG sources, should be presumed to have a less than significant impact related to climate change, which is a global cumulative impact issue. Non-transportation sources include combustion related components/equipment, process losses, purchased electricity, and water usage and wastewater discharge (CARB, 2008f). As discussed in **Section 3.8, Air Quality,** Phase 1 GHG emissions are estimated at 531 tons CO_2e, and Fully Connected Alternative GHG emissions are estimated at 979 tons CO_2e. Emissions from implementation of the NBWRP would be well below CARB's interim GHG threshold of 7,000 metric tons of CO_2e per year.

Other projects within the State would also contribute to GHG emissions, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset GHG emissions. Implementation of the NBWRP would provide recycled water as an irrigation supply to offset potable surface and groundwater supplies currently used for this purpose. Due to the limited nature of NBWRP's GHG emissions, and the mitigation measures established in **Section 3.8, Air Quality**, the contribution of NBWRP to the significant cumulative impact associated with GHG emissions would not be considered cumulatively considerable.

Criteria Pollutants. As demonstrated in **Table 4-1,** there are a number of projects in the area that would overlap with implementation of NBWRP. However, according to the *BAAQMD CEQA Guidelines*, a project's cumulative impact on air quality is considered less than significant if it does not have an individually significant operational air quality impact and it is consistent with the local general plans as well as the regional air quality plan (BAAQMD, 1999). As demonstrated in **Section 3.8, Air Quality**, NBWRP would not result in significant increases in long-term emissions of criteria pollutants. As such, the proposed project would not conflict with an applicable local or regional air quality plan and would not be cumulatively considerable. Cumulative impacts related to criteria pollutants would be less than significant.

Impact 4.8: Cumulative Long-term Impacts on Cultural and Historic Resources. Concurrent operation of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term impacts to cultural resources. (Less than Significant)

NBWRP has the potential to for long-term impacts related to the loss of cultural resources and historical resources. Implementation of pipelines, pump stations, and storage facilities would have the potential to result in the permanent loss of cultural resources. As discussed in **Section 3.12, Cultural Resources**, it is anticipated that these impacts can be avoided through siting of facilities in previously disturbed areas, such as roadways. Implementation of **Mitigation Measures 3.12.1 and 3.12.2** established in **Section 3.12, Cultural Resources**, which includes measures to avoid permanent impacts to cultural resources associated with facility installation.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of historic sites or archaeological remains, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or avoid impacts to cultural resources. Due to the limited potential for NBWRP's temporary impacts, and the mitigation measures established in **Section 3.12, Cultural Resources**, the contribution of NBWRP to impacts regarding the loss of cultural resources would be rendered less than cumulatively considerable.

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CHAPTER 5
Growth Inducement and Secondary Effects of Growth

5.1 Introduction

The California Environmental Quality Act (CEQA) Guidelines (§15126.2(d)) require that an Environmental Impact Report (EIR) evaluate the growth inducing impacts of a proposed action. The EIR should:

> *Discuss the way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

Under the National Environmental Policy Act (NEPA), it is U.S. Bureau of Reclamation (Reclamation) policy to encourage and facilitate the most efficient beneficial use of project water and thus, to encourage changes that implement these policies, consistent with the Reclamation water management mission. Proposals for changes in water use reflect ongoing trends of greater efficiencies in agricultural water use. A NEPA review is required to identify the likely environmental consequences of such proposals, and this information must be considered in Reclamation decision-making. In assessing the environmental impacts of changes in water use, numerous issues arise, including: What is the relationship of water supply and urban population growth? Is the change growth inducing, or are we simply accommodating unavoidable demographic trends by providing a relatively impact-free source of water? How far, and to what degree, do we follow the impacts that are associated with the newly approved water use?

According to the NEPA Handbook, one way to determine if the change in water use will cause growth is to prepare an Environmental Assessment to assist Reclamation in determining whether the urban growth is a consequence of the project water supply, or whether the growth would occur anyway, even in the absence of the project water. If comparable quantities of alternative water supplies are reasonably available (as supported by appropriate documentation), then the "future without" scenario is probably very similar to the proposed action with respect to

population growth issues. This can be documented in the “no action” (“future without”) alternative, eliminating the need for a detailed discussion of issues and impacts which are not a consequence of the Federal action at issue. In situations in which it is clear that growth is a result of the provision of project water (“but for” the provision of project water, this growth would not occur), and these impacts can be attributed to the Federal action, detailed descriptions of the impacts must be provided in the NEPA document.

A project can have direct and/or indirect growth inducement potential. Direct growth would result if a project involved construction of new housing. A project can have indirect growth inducement if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. A project would also have an indirect growth inducement effect if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service.

Based on the CEQA and NEPA discussions above, assessing the growth-inducement potential of the North Bay Water Recycling Program (NBWRP or proposed project) involves answering the question: “Would implementation of the proposed project directly or indirectly support economic expansion, population growth, or residential construction?” Water supply is one of the chief, though not the only, public services needed to support urban development. A water service capacity deficiency could constrain future development, particularly if coupled with strong community policy. Adequate water supply, treatment, and conveyance would play a role in supporting additional growth in the project area, but it would not be the single impetus to such growth. Factors such as the General Plans and policies of the cities and counties and/or the availability of wastewater disposal capacity, public schools, and transportation services also influence business and residential or population growth in the planning area. Economic factors, in particular, greatly affect development rates and locations.

Growth induced from a project may result in adverse impacts if the growth is not consistent with the land use plans and growth management plans and policies for the area affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service and solid waste service. The urban development may have environmental impacts, as identified in CEQA documents prepared for adoption of local land use plans. A project that would induce “disorderly” growth that is in conflict with local land use plans could indirectly cause additional adverse environmental impacts and impacts to other public services. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

5.2 Growth-Inducement Potential

5.2.1 Direct Growth-Inducement Potential

To determine direct growth inducement potential, the proposed project was evaluated to verify whether an increase in population or employment, or the construction of new housing would occur as a direct result of the project. Construction of the proposed project would involve short-term workers for the course of the construction activities. Operation of the proposed project would not involve a substantial change in the existing operation and maintenance activities of the existing wastewater treatment plants or other facilities of the Member Agencies. Therefore, the proposed project would not result in a direct increase in population or employment or new housing.

5.2.2 Indirect Growth-Inducement Potential

To determine indirect growth inducement potential, the proposed project was reviewed to ascertain whether it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. Therefore, to assess whether the proposed project would induce growth indirectly, it must be determined whether the project frees up (i.e., increases the amount of) potable water that would be available for urban development, thus removing an obstacle for growth. To make this determination, this section studies the current and projected water demand in the individual Member Agency service areas, planned use of recycled water as a supply source to meet increasing water demands, and the role of the proposed project. In addition, projected growth and potential development that is planned under the local general plans are presented, as relevant.

5.3 Water Supply and Recycled Water Use

Table 5-1 presents a summary of projected urban water demands for 2030 within the NBRWP service areas, which include the urban areas of Novato, the City of Sonoma, and the Milliken-Sarco-Tulucay (MST) Area of Napa County. This information has been compiled from the water demand projections included in the Sonoma County Water Agency (SCWA) *Water Project EIR* (SCWA, 2008) and the *2050 Napa Valley Water Resources Study* (City of Napa 2007), and presents projected water demands, water supply, conservation, and recycled water levels that have been included in regional water supply planning. The total projected urban water use within the NBWRP Service Areas is estimated to be 23,099 AFY by 2030. Implementation of Phase 1 of the NBWRP would provide approximately 2,100 AFY of urban irrigation demand offset.

Table 5-2 provides a summary of agricultural demands broken down by use type for Marin, Sonoma, and Napa Counties. This information was compiled as part of the Phase 3 Engineering and Economic/Financial Analysis Report, and is calculated based on land use patterns and crop water needs. The California Department of Water Resources (DWR) provided land use data for Marin County; Napa SD and DWR provided land use data for Napa County; and SCWA provided land use data for Sonoma County. Land use maps indicate that agricultural and urban landscaping acreage within the NBWRP Service Areas totals about 40,500 acres. Out of this acreage, less than one percent is non-irrigated farmland (idle and dry farming lands).

TABLE 5-1
RELATIONSHIP OF NBWRP PHASE 1 TO LONG-TERM URBAN WATER DEMANDS AND SUPPLY BY NBWRA SERVICE AREA

						NBWRP Phase 1			Population		
	2030 Urban Demand[1]	Conservation[1]	Recycled Water[1]	Local[1]	Projected Supply	Urban	Agriculture	Total	2005	2030	Source
North Marin Water District	15,992[1]	1,518	674	800	13,000[1]	542	0	542	58,816	68,669	Marin Countywide General Plan
LGVSD[2]						204	0	204	n/a	n/a	
Subtotal NMWD Service Area	15,992	1,518	674	800	13,000[1]	744	0	744	58,816	68,669	Marin Countywide General Plan
Valley of the Moon	4,322[1]	504	5	83	3,730[1]	n/a	n/a	n/a	22,665	25,466	Sonoma County General Plan
City of Sonoma	3,397[1]	326	50	21	3,000[1]				10,733	12,984	City of Sonoma
Subtotal Sonoma Valley Service Area	7,719	830	55	104	6,730	874			33,398	38,450	
Napa MST Area	4,155[3]	N/A	420[3]	N/A	4,155	1,368	771	2,137	4,800	5,242	2050 Napa Valley Report
Total	**23,544**	**1,844**	**1,144**	**821**	**20,155**	**2,112**	**1,645**	**3,757**	**97,014**	**112,361**	
Urban vs. Agricultural (%)						**56%**	**44%**	**100%**			

N/A – Not Available
n/a – Not applicable. Under Phase 1 LGVSD supplies would be served in the NMWD service area; therefore, water supply and population information for the NMWD service area account for this water supply offset.

1 SCWA, 2008.
2 LGVSD would supply recycled water to NMWD service area under Phase 1 Therefore, water demands are included in totals for NMWD.
3 City of Napa, 2005. 2050 Napa Valley Resources Study. All 2030 year estimates based on mid-point of 2020 and 2050 projections provided by WYA Report.
4 Brown and Caldwell, 2007.

SOURCE: SCWA, 2008

TABLE 5-2
ESTIMATED IRRIGATION WATER DEMANDS BY USE TYPE VERSUS RECYCLED WATER PROVIDED

Estimated Irrigated Acreage and Water Use in the NBWRP				Recycled Water Provided by NBWRP			
Land Use Type	**Water Use Rate (AF/acre)**	**Acres**	**Total Maximum Water Use (AFY)**	**Phase 1 (AFY)**	**Alternative 1: Basic System (AFY)**	**Alternative 2: Partially Connected System (AFY)**	**Alternative 3: Fully Connected System (AFY)**
Urban Landscaping							
Marin County[1]	2.234	1,335	2,982	744	744	1479	1479
Napa County	2.801	644	1,804	1,364	1,364	1,978	1,978
Sonoma County	3.25	333	1,083	0	435	542	668
Total		*2,312*	*5,868*	*2,110*	*2,545*	*4,201*	*4,127*
Dairy & Pasture							
Marin County	2.502	0	0	0	0	554	647
Napa County		37	92	0	339	339	339
Sonoma County		4,721	11,811	0	249	342	249
Total		*4,757*	*11,903*	*249*	*588*	*1,235*	*1,235*
Orchard							
Marin County	2.971	0	0	0	0	0	0
Napa County		30	90	0	0	10	10
Sonoma County		0	0	0	0	0	0
Total		*30*	*90*	*0*	*0*	*10*	*10*
Irrigated Farm							
Marin County	1.339	0	0	0	0	69	94
Napa County		0	0	0	0	0	0
Sonoma County		2,924	3,915	8	16	41	280
Total		*2,924*	*3,915*	*8*	*16*	*110*	*374*
Vineyard							
Marin County	N/A	0	0	0	0	0	0
Napa County	0.25	10,289	2,572	771	1,487	2,093	2,093
Sonoma County	0.5	20,156	10,078	779	2,020	3,802	4,922
Total		*30,445*	*12,650*	1,550	3,507	5,895	7,015
Totals		**40,469**	**34,428**	*3,468*	*6,440*	*11,051*	*12,561*

N/A = Not applicable

[1] The Petaluma and MMWD service areas are included in this water use estimate.

SOURCE: CDM, 2008

Table 5-2 identifies the type of use category, the number of acres of that use category within the NBWRP service areas, broken down by Marin, Napa, and Sonoma Counties. Additionally, the amount of recycled water that would be available under Phase 1 and each of the Action Alternatives under consideration is provided.

5.3.1 LGVSD Service Area

Water Supply

LGVSD provides wastewater services in San Rafael and areas in the vicinity (within Marin County) that receive water supply from Marin Municipal Water District (MMWD). The sources of water supply for MMWD are the local watershed (surface water) and water from Sonoma County Water Agency (City of San Rafael, 2004). The total current water supply capacity of MMWD is approximately 80,000 acre-feet (AF). Approximately 72 percent of the water used within the MMWD service area is from local reservoirs, 26 percent of the water is from the Russian River in Sonoma County, and 2 percent is from recycled water (City of San Rafael, 2006). **Table 5-3** provides the water supply sources for MMWD.

TABLE 5-3
WATER SUPPLY SOURCES FOR MMWD SERVICE AREA (AFY)

Water Supply Source	2005	2010	2015	2020	2025	2030
Surface water*	20,500	20,500	20,500	20,500	20,500	20,500
Surface water (Imported from SCWA)	8,150	7,590	7,025	5,460	5,900	5,366
Recycled water	650	710	775	840	900	934
Total	**29,300**	**28,800**	**28,300**	**27,800**	**27,300**	**26,800**

* MMWD owns and operates 7 surface water reservoirs; 5 within the Mt. Tamalpais Watershed and 2 within West Marin.

SOURCE: Marin County, 2007b

The potable water available from the MMWD watershed is effectively defined by the capacity of its reservoirs and the operational yield. The watershed is currently managed for an operational early planning phase and cannot be relied upon for additional water supply. The current operational yield of the watershed is approximately 29,000 AFY, causing a current water supply deficit of 1,650 AF. This deficit is projected to increase to 7,900 AFY by 2020 (City of San Rafael, 2004).

MMWD has two contracts for water from the Russian River which could provide water supply of up to 14,300 AFY. However, use of additional Russian River water is limited by pipeline capacity and environmental concerns. To respond to the anticipated supply deficit, MMWD is continuing its efforts to increase water conservation, is exploring additional opportunities to partner on water recycling with LGVSD (City of San Rafael, 2006).

General Plan Policies

MMWD has implemented a recycled water program with LGVSD for water use for irrigation and toilet flushing (City of San Rafael, 2004). Usage of potable and recycled water within the MMWD service area in 2001 and 2002 totaled 31,338 AF.

One of the Marin County General Plan (2007a) policies calls for offsetting new water demand. The policy states that in water districts that provide insufficient water to serve new construction or uses requiring an additional water meter or increased water supply as determined by the district or Marin County, the County shall require new construction or uses to offset demand so that there is no net increase in demand. The County lists use of reclaimed water as one of the measures that would be required to achieve no net increase in demand in addition to water catchments and reuse on site and retrofits of existing uses in the district to offset increased demand. These measures shall be achieved in partnership with the applicable water district and shall serve as evidence that an adequate, long-term, and sustainable water supply is available to serve the project (Marin County, 2007a).

LGVSD is participating in a regional NBWRA recycled water effort to take advantage of the potentially positive aspects related to utilizing reclaimed water in place of potable water to insure rate payers have a more sustainable water source. The LGVSD Strategic Plan lists the proposed project that LGVSD would participate in and receive federal and state funding that will expand the LGVSD's recycled water effort (LGVSD, 2008).

Recycled Water Use Under NBWRP

Partnering of LGVSD with other agencies under NBWRP would provide an opportunity for LGVSD to access federal funding for local recycled water use. As **Table 5-4** below indicates, implementation of Phase 1 would provide 202 AFY of recycled water supply to the Hamilton Field Area, in partnership with NMWD. This would provide offset of potable supplies currently provided by NMWD for landscape irrigation.

TABLE 5-4
RECYCLED WATER USE UNDER THE PROPOSED PROJECT FOR LGVSD SERVICE AREA

Project	No Project Alternative	No Action Alternative	Phase 1	Alternative 1: Basic System	Alternative 2: Partially Connected System	Alternative 3: Fully Connected System
New recycled water use (AFY)	0	0	202	202	409	409
Areas of recycled water use	--	--	Hamilton Field	Hamilton Field	Peacock Gap Golf Course	Peacock Gap Golf Course

SOURCE: CDM, 2009

Full build out of Alternative 1 would not increase recycled water use from LGVSD. Alternative 2 would include construction of facilities to serve Peacock Gap Golf course, with the MMWD service area. This project would be implemented in partnership with MMWD, and would provide an estimated potable supply offset of 202 AFY. No additional facilities would be constructed under Alternative 3.

The provision of recycled water at these levels is consistent with the levels of recycled water use identified in the Marin County General Plan (Table 5-3).

5.3.2 Novato SD Service Area

Water Supply

Novato SD provides wastewater services in Novato and areas in the vicinity (within Marin County) that receives water supply from NMWD. The sources of water supply for NMWD are the Stafford Lake[1] and imported water from SCWA. Recycled water is expected to become available as a third source of water in 2007 (Marin County, 2007b). **Table 5-5** shows the water supply sources for NMWD that serves the Novato SD service area.

TABLE 5-5
WATER SUPPLY SOURCES FOR NMWD (AFY)

Water Supply Source	2005	2010	2015	2020	2025	2030
Surface water (Stafford Lake)	0	1,700	1,700	1,700	1,700	1,700
Surface water (Imported from SCWA)	10,060	10,954	11,785	12,297	12,566	12,724
Recycled water (Tertiary treated)	0	430	69	800	910	1,020
Other (Raw water for irrigation)[1]	250	250	250	250	250	250
Total	**10,310**	**13,334**	**14,425**	**15,047**	**15,426**	**15,694**

[1] Untreated water pumped from Stafford Lake used for irrigation of Stafford Lake Park and Indian Valley Golf Course, value not included in 1,700 acre-feet safe yield. The table does not include the secondary-treated wastewater use for NMWD pastureland irrigation

SOURCE: Marin County, 2007b

Stafford Lake's historical annual yield is 2,000 acre-feet (AF) and the safe long-term annual yield has been determined to be 1,700 AF. As indicated in Table 5-5, the current and projected Stafford Lake water supply has been estimated at its safe long-term yield of 1,700 AFY. Most of NMWD's water supply (about 80 percent) is obtained through an agreement with SCWA that provides water principally from the Russian River.

[1] Stafford Lake, a reservoir on Novato Creek west of Novato.

General Plan Policies

As noted in the Marin County General Plan, the main constraints and limitations to the water supply in the NMWD service area include (Marin County, 2007b):

- Physical capacity of SCWA's transmission system;
- Water rights limitations of Novato Creek / Stafford Lake;
- Groundwater quality and quantity limitations;
- Drought impacts to SCWA supplies. An extended drought could result in a supply reduction of 30 percent or more; and
- Legal and environmental impacts to SCWA supplies. Anticipated future supply increases may be delayed due to approval of additional water rights and challenges to environmental documentation.

The water supply is adequate to meet the demand under Novato General Plan buildout. Water distribution facilities are developed on a site-by-site basis, financed by the developer through agreements with the water agency (City of Novato, 2003). As part of the Public Facilities policy of water conservation, Novato General Plan (2003) states two programs for the City: Use of treated wastewater for irrigation of City facilities and encourage wastewater irrigation at other public and private facilities, where practicable, and support and encourage reclamation of wastewater for reuse wherever possible in accordance with the regulations and ordinances of the NMWD and MMWD. A third program states considering developing a plan in conjunction with the Novato SD and water districts to promote and maximize to the extent feasible the reuse of treated wastewater and consider enacting an ordinance to have developments provide wastewater distribution facilities in conformance with the General Plan.

Novato SD is actively planning upgrades to water recycling facilities and expansion of recycled water use (Marin County, 2007b). Currently, the treated wastewater from the Novato SD WWTPs is used to irrigate 1,000 acres of district-owned or leased pasturelands during dry weather. The irrigation program, which has been operating since 1986, reclaims an average of over 40 percent of the average annual dry-weather flow and has proven to be a financial success for Novato SD. Novato SD is the largest recycled water producer in the MMWD service area. Recycled water use occurs mainly in central Marin County within NMWD's and MMWD's service areas. Secondary-treated water is used for pasture irrigation on NMWD's land and tertiary treated water is used for irrigation, toilet flushing, car washes, cooling towers, and laundries (Marin County, 2007b).

Recycled Water Use Under NBWRP

As shown in Table 5-5 above, the Marin County General Plan anticipates recycled water use to increase gradually over time. It is projected that by 2030 approximately 1,020 AF of tertiary treated effluent would be used for urban landscape irrigation (Marin County, 2007b). The SCWA Water Project EIR identifies 674 AFY of recycled water use in the NMWD service area.

Table 5-6 below summarizes the amount of recycled water and the service areas identified under each of the NBWRP Alternatives. Under Phase 1, approximately 542 AFY would be provided within the Novato SD/NMWD service area. Additionally, 202 AFY would be provided by LVGSD to the NMWD service area, resulting in a total recycled water supply of 744 AFY under Phase 1 for Marin County. This is consistent with recycled water and water supply planning within the region, although it is slightly higher than the amount of potable offset included in the SCWA Water Project EIR.

TABLE 5-6
RECYCLED WATER USE UNDER THE PROPOSED PROJECT FOR NOVATO SD SERVICE AREA

Project	No Action Alternative	No Action Alternative	Phase 1	Alternative 1: Basic System	Alternative 2: Partially Connected System	Alternative 3: Fully Connected System
New recycled water use (AFY)	0	193	542	542	2,038	3,971
Areas of recycled water use	--	North Novato UWMP Area	North and central Novato UWMP Area	North and central Novato UWMP Area	Full Novato UWMP and Sears Point	Sears Point, Southern Sonoma Valley area

SOURCE: CDM, 2008

Full buildout of Alternative 1 would be equivalent to Phase 1, as no additional supplies would be provided within the Novato SD/NMWD service areas. Alternative 2 would provide for increased urban uses within the City of Novato and provision of agricultural irrigation supplies to the Sears Point area. Under Alternative 3, supplies would also be provided to the Southern Sonoma Valley from Novato SD.

5.3.3 SVCSD Service Area

Water Supply

SVCSD provides wastewater services in the area (i.e., portions of city of Sonoma and unincorporated Sonoma County) that receives water supply from Sonoma County Water Agency (SCWA). Most water in the city is purchased from SCWA, with City wells augmenting that supply during periods of peak use. Even if residential construction continues to be limited by the Growth Management Ordinance, water supply and delivery capacity in Sonoma likely will need to be expanded by 2010 through activation of one of the dormant City wells, and again by 2015 through the planned construction of additional pipe by SCWA (City of Sonoma, 2006a).
Policy 1.6 of the Sonoma General Plan (2006) limits growth in Sonoma to a rate that is based on the cost-effective provision of services within the sphere of influence. SVCSD upgraded the wastewater treatment plant to provide tertiary treatment and increase the amount of reclaimed wastewater use by pursuing additional reclaimed water user contracts to address potential impacts

resulting from projected growth within the city of Sonoma and the SVCSD as a whole (City of Sonoma, 2006b).

The Russian River and groundwater are the primary water supply sources for SCWA. In recent years, both water conservation and re-use programs have expanded considerably. As advanced treatment has become an increasingly standard practice, water reuse programs are becoming even more viable (Sonoma County, 2008). **Table 5-7** provides the water supply sources for SCWA and the projected demand under the 2005 Urban Water Management Plan (SCWA, 2006).

TABLE 5-7
WATER SUPPLY SOURCES FOR SCWA (AFY)

Water Supply Source	2010	2015	2020	2025	2030
Groundwater	3,870	3,870	3,870	3,870	3,870
Surface Water	75,000	75,000	101,000	101,000	101,000
Total Water Supplies	78,870	78,870	104,870	104,870	104,870
Projected Demand (2005)	73,642	74,983	85,717	96,574	101,000
Difference (Supplies - Demand)	*5,228*	*3,887*	*19,153*	*8,296*	*3,870*

SOURCE: Sonoma County, 2006 (uses 2000 Urban Water Management Plan)

General Plan Policies

The Sonoma County General Plan lists the following goals and policies that support recycled water use:

- *GOAL WR-4*: Increase the role of conservation and safe, beneficial reuse in meeting water supply needs of both urban and rural users.
- *Objective WR-4.1*: Increase the use of recycled water where it meets all applicable regulatory standards and is the appropriate quality and quantity for the intended use.
- *Policy WR-4j*: Ensure that public wastewater disposal systems are designed to reclaim and reuse recycled water for agriculture, geothermal facilities, landscaping, parks, public facilities, wildlife enhancement and other uses to the extent practicable, provided that the water meets the applicable water quality standards and is supplied in appropriate quantities for the intended uses.
- *Policy WR-4k*: Where consistent with water quality regulations, encourage graywater systems, roof catchment of rainwater and other methods of re-using water and minimizing the need to use potable surface water or groundwater.

SCWA is involved with coordinating several types of recycled water programs. SCWA works with a number of local authorities responsible for water supply and wastewater collection and distribution. SCWA and its contractors encourage recycled water use by collecting, as part of the water rates, funds to be held in special reserve for recycled water projects carried out by its water

contractors and other customers. Current and future recycled water projects have been developed within SCWA's service area to accommodate for additional flow from projected growth as indicated in the adopted general plans and stringent wastewater discharge regulations. SCWA also enters into recycled water use agreements with private individual water users near recycling facilities that it operates (SCWA, 2008).

Recycled Water Use Under NBWRP

As previously shown in Table 5-2 and Table 5-3, regional water supply planning anticipates recycled water use to increase gradually over time, and provision of recycled water has been included in long-term planning. The SCWA Water Project EIR (2008) identifies 50 AFY of recycled water use within the City of Sonoma, and 5 AFY within the Valley of the Moon service area. **Table 5-8** below shows the recycled water use under the NBWRP for SVCSD service area. The recycled water produced under the proposed project would offset equivalent amount of potable water use for both urban uses (111 AFY) served by SCWA via the Sonoma Aqueduct, and groundwater and surface water supplies used by agricultural irrigators (1,862 AFY). Provision of recycled water within Sonoma Valley would reduce peak demands on potable water supplies within urban areas, reduce groundwater pumpage, and reduce surface water diversions for irrigation.

TABLE 5-8
RECYCLED WATER USE UNDER THE PROPOSED PROJECT FOR SVCSD SERVICE AREA

Project	No Project Alternative	No Action Alternative	Phase 1	Alternative 1: Basic System	Alternative 2: Partially Connected System	Alternative 3: Fully Connected System
New recycled water use (AFY)	0	874	874	2,719	4,381	4,230[1]
Areas of recycled water use	--	Portion of Existing SVCSD Recycled Water Project Area, Napa Salt Ponds.	Existing SVCSD Recycled Water Project Area, Napa Salt Ponds.	Existing SVCSD area (Carneros West), Napa Salt Ponds, additional portions of Sonoma Valley	Additional areas in the SVCSD southern Sonoma Valley	North of Sonoma Valley to Central Sonoma service area

[1] Reuse from SVCSD is reduced by 152 AFY under Alternative 3, as Southern Sonoma Valley is served by supplies from Novato SD, and SVCSD supplies are used to serve the Central Sonoma service area, located further north in the Sonoma Valley.

SOURCE: CDM, 2008b.

Additionally, Phase 1 would include provision of recycled water to the Napa Salt Ponds from the SCVSD, providing environmental enhancement through the dilution of bittern within Pond 7 and 7A. Provision of these supplies for environmental enhancement would not affect growth trends within the Sonoma Valley.

Alternative 1 would include facilities necessary to provide additional supplies for both urban and agricultural irrigation, increases recycled water supplies to 2,719 AFY. Supplies would continue

to be served to the Napa Salt Ponds for enhancement purposes. Alternative 2 would increase recycled water supply to 4,381 AFY by extending facilities to serve irrigators in the Southern Sonoma Valley. Alternative 3 would direct recycled water generated at the SVCSD WWTP to the Central Sonoma Valley, extending recycled water service further north up the Sonoma Valley. Supplies provided would be slightly reduce compared to Alternative 2, as slightly higher demands are present in the Southern Sonoma Valley, which would be served by supplies from Novato SD under Alternative 3.

5.3.4 Napa SD Service Area

Water Supply

Napa SD provides wastewater services to the city of Napa and other areas within Napa County that receive water supply from the Napa Water Division. The sources of Napa's water supply are Milliken Reservoir, Lake Hennessey, and water purchased under contract from the State Water Project. There is a need for additional water supply to accommodate projected growth in the city (City of Napa, 2007). **Table 5-9** provides the available water supplies for Napa for normal, multi-dry, and single-dry years under current, 2020, and 2050 conditions.

TABLE 5-9
WATER SUPPLIES FOR NAPA WATER DIVISION (AFY)

Water Source	Normal Year	Multi-Dry Years	Single-Dry Year	*Water Demands*
				Napa
Current				15,370
Total Local Storage	18,200	11,117	5,400	
Total Depletion of Storage	-	1,333	6,600	
Total SWP Water	10,336	5,440	2,720	
Total Water Supply	28,536	17,890	14,720	
2020				18,798
Total Local Storage	18,200	11,117	5,400	
Total Depletion of Storage	-	1,333	6,600	
Total SWP Water	14,972	7,880	3,940	
Total Water Supply	33,172	20,330	15,940	
2050				21,643
Total Local Storage	18,200	11,117	5,400	
Total Depletion of Storage	-	1,333	6,600	
Total SWP Water	15,048	7,920	3,960	
Total Water Supply	33,248	20,370	15,960	

SWP = State Water Project

SOURCE: West Yost & Associates, 2005

During multi-year droughts, the City's existing water supply is insufficient to meet the needs of the city in the event that there is a cutback in State Water Project allocation. The water deficit would become less problematic in the future because the City's water entitlements from the State Water Project would grow significantly faster than projected growth in water demand in the

City's water service area. Based on the City's current contract, the 1996 entitlement of 6,200 AF would increase to 18,800 AF by the year 2021 (its ultimate SWP entitlement). This will provide a surplus in most years and the ability to absorb large cutbacks in dry years. For the purposes of long range analysis, the *Water System Optimization and Master Plan*[2] assumes a 50 percent reduction in SWP deliveries and a reduction in water demand of 20 percent during dry years to reflect the City's drought demand management measures. At the current entitlement schedule, there will remain a remote possibility that a cutback in State Water Project allocations could result in a water deficit up until the year 2012. Based on past drought experience, the impact of this deficit is public inconvenience and minor loss of irrigated landscape. The City's water distribution system also has insufficient short-term storage capability to address current and projected needs (City of Napa, 2007).

The unincorporated areas of Napa County rely principally on groundwater resources and surface water collection. There are three main groundwater basins in Napa County: North Napa Valley, MST, and Carneros. According to the *2050 Napa Valley Water Resources Study*, during wet years, with ample rainfall, sufficient water supply would be available under current and future conditions, however storage capacity may be inadequate. Projections for dry years, however, show users in both Napa's incorporated and unincorporated areas may not have enough water to meet all their needs through the year 2050. Thus, both municipal water supplies and groundwater supplies may face challenges (County of Napa, 2008). **Table 5-10** provides water supplies and demand for the unincorporated areas (i.e., Main Basin, MST, and Carneros).

TABLE 5-10
WATER SUPPLIES AND DEMANDS IN UNINCORPORATED AREAS IN THE PROJECT AREA (AFY)

Water Sources	Groundwater	Surface Water	Recycled Water	*Total Water Supply*	*Water Demands*
Current					
Main Basin	28,000	7,900	900	36,800	*33,656*
MST	3,054	250	-	3,304	*3,313*
Carneros	1,347 to 1,747	800 to 1,200	-	2,147 to 2,947	*2,547*
Total	32,401 to 32,801	8,950 to 9,350	900	42,251 to 43,051	*39,516*
2020					
Main Basin	28,000	7,900	1,072	36,972	*36,416*
MST	3,040	250	420	3,710	*3,710*
Carneros	744 to 1,172	800 to 1,200	1,495 to 2,110	3,039 to 4,482	*3,467*
Total	31,784 to 32,212	8,950 to 9,350	2,987 to 3,602	43,721 to 45,164	*41,593*
2050					
Main Basin	28,000	7,900	1,500	37,400	*41,148*
MST	3,931	250	420	4,600	*4,601*
Carneros	2,409 to 3,424	800 to 1,200	1,495 to 2,110	4,704 to 6,734	*5,719*
Total	34,340 to 35,355	8,950 to 9,350	3,415 to 4,030	46,700 to 48,735	51,468

SOURCE: West Yost & Associates, 2005

2 The City's *1996 Water System Optimization and Master Plan* was prepared to address the current and long-term water supply needs of the community. The plan includes goals, policies and implementation measures, along with the environmental analysis, to address the current and long-term water system needs for the city (City of Napa, 2007).

While groundwater use is not a significant source for municipal uses, groundwater typically serves as the main water supply source to meet water demands in the unincorporated areas of the county. The water demand in the Napa River Watershed estimated at approximately 39,500 AFY in 2000 is projected to increase to approximately 51,500 AFY in 2050.[3] The "2050 Study" identifies potential water supply projects that may be pursued to reliably meet existing and future demands. It also cautions municipalities considering groundwater use and urges aggressive pursuit of recycled water as a supply for non-potable (irrigation) water. Napa SD has initiated planning for provision of recycled water to the MST and Carneros areas (County of Napa, 2008), which is part of the proposed project (County of Napa, 2008). Table 5-10 shows water supply and demand in the Main Basin, MST and Carneros areas.

General Plan Policies

Measures explored jointly by the Napa Water Division and Napa SD to address increasing water demands include greater use of recycled water and incentive programs for use of water conservation measures within new developments above and beyond the currently mandated programs (City of Napa, 2007).

The 1998 Napa General Plan lists a policy to evaluate the feasibility of use of reclaimed wastewater in appropriate locations. In order to plan future and adequate water supply capacity and services to Napa, the General Plan calls for the implementation of the *1997 Water System Optimization and Master Plan* (City of Napa, 1998). The 1997 Master Plan identifies use of reclaimed wastewater to offset potable water supplies currently being used to irrigate parks, a golf course, and other landscaped areas in Napa and improvements to water supplies during drought years. The City would enter into an agreement with Napa SD to deliver recycled water to the current City customers. The areas proposed for recycled water use in the General Plan are area south of Imola Avenue, east of Napa River, and west of Highway 221 (including the Napa State Hospital property), the south Napa Market Place, the Stanly Ranch, and the property owned by Napa SD adjacent to Imola Avenue bordering Napa River. The water reuse in the proposed areas would offset potable water use for irrigation of turf at Kennedy Golf Course, Kennedy Park, and Napa Valley College. Recycled water use could offset 400 AF of water currently being used for landscaping irrigation and offset potable water use for landscape irrigation for future development (City of Napa, 1998).

Future growth projected in the Napa Valley is anticipated to exceed current and projected water supply sources under year 2020 and 2050 and would further exacerbate groundwater conditions for MST and Carneros basins. The Napa County General Plan (2008) lists conservation policies that include maintaining and improving slough and tidal mudflats habitat with appropriate measures such as utilizing reclaimed wastewater for salinity control and include promoting development of additional water resources to improve water supply reliability and sustainability in Napa County, including imported water supplies and recycled water projects. The County would promote and support the use of recycled water wherever feasible, including the use of tertiary treated water, to help improve supply reliability and enhance groundwater recharge.

[3] This increase in demand is predominantly a result of existing vineyards ultimately being converted to denser plantings (i.e., increased vine density per unit area).

Recognizing that groundwater best supports agricultural and rural uses, the County discourages urbanization requiring net increases in groundwater use and discourages incorporated jurisdictions from using groundwater except in emergencies or as part of conjunctive-use programs that do not cause or exacerbate conditions of overdraft or otherwise adversely affect the County's groundwater resources (County of Napa, 2008).

As stated in Policy AG/LU-74, the County supports the extension of recycled water use to the Coombsville area to reduce reliance on groundwater in the MST groundwater basin and exploration of other alternatives. Also, the County shall identify and support ways to utilize recycled water for irrigation and non-potable uses to offset dependency on groundwater and surface waters and ensure adequate wastewater treatment capacity through measures such as using wastewater treatment and reuse facilities where feasible to reclaim, reuse, and deliver treated wastewater for irrigation and possible potable use depending on wastewater treatment standards and encouraging the use of non-potable/recycled water wherever recycled water is available and require the use of recycled water for golf courses where feasible (County of Napa, 2008).

Napa SD has an extensive Water Reuse program to promote the use of recycled water in the community. Napa SD has produced nearly 2,149 AFY of Title 22 unrestricted use water. The role of water reuse has been critical in the Napa Valley area, which has limited water supply and which relies on groundwater and imported water for potable water supply. The availability of recycled water has allowed the area to develop recreational facilities including the world famous Chardonnay Golf Course and Vineyards, and Eagle Vines Vineyards and Golf Course (Napa SD, 2008).

The goal of Napa SD is to double the recycled water use to 50% of all wastewater it collects and discharges. This would make approximately 3,500 AFY available for use in and around the city. Napa SD continues to seek users for recycled water (Kennedy Park Golf Course, public agencies and private entities by Imola Avenue, and Stanly Ranch property). Policy CA-10.2 states that the City of Napa shall support continued efforts by the Napa SD to promote the use of recycled water (City of Napa, 2007).

The 2050 Study[4] identifies potential water supply projects that may be pursued to reliably meet existing and future demands. It also cautions municipalities considering groundwater use and urges aggressive pursuit of recycled water as a supply for non-potable (irrigation) water. Napa SD has initiated planning for provision of recycled water to the MST and Carneros areas. The Napa County General Plan contains a number of policies that address water supply, conservation, and reuse. The Plan contains policies supporting the protection of surface and groundwater resources, as well as policies that require the county to monitor groundwater supplies where publicly owned wells exist, and encourage voluntary private monitoring of the county's groundwater resources. The General Plan includes policies that reinforce the development and use of recycled water as a means of meeting future water supply demands (Napa County, 2008a).

[4] The Napa County Flood Control and Water Conservation District recently conducted a study, the "2050 Napa Valley Water Resources Study," comparing available Napa Valley water supplies to existing and future water demands through the year 2050.

Recycled Water Use under NBWRP

Table 5-11 below shows the recycled water use under the NBWRP for Napa SD service area. The recycled water produced under the proposed project would offset equivalent amount of potable water use, which would provide for reliable water supply to meet the projected demands shown in Table 5-10 above.

TABLE 5-11
RECYCLED WATER USE UNDER THE PROPOSED PROJECT FOR NAPA SD SERVICE AREA

Project	No Project Alternative	No Action Alternative	Phase 1	Basic System	Partially Connected System	Fully Connected System
New recycled water use (AFY)	0	0	2,137	3,192	4,421	4,421
Areas of recycled water use	None	None	MST area	MST, East Carneros area	Southeast Napa, expanded Carneros east area	-

SOURCE: CDM, 2008

5.3.5 Summary of the Indirect Growth Inducement Potential

As discussed in **Sections 5.3.1 through 5.3.4**, the Member Agencies would experience water supply deficits in the face of new development in the service areas. Recycled water use under the NBWRP would offset potable water demand and make potable water available for new development. However, as discussed above, the new development is part of the planned growth and development of the individual General Plans. The NBWRP would not induce additional growth beyond that planned for in the LGVSD, Novato SD, SVCSD, Napa SD areas. The level of growth would be consistent with the extent planned and approved by the local General Plans in the area.

The provision of adequate water supply is an essential component for the preservation of agricultural practices within the region. There are local policies that preserve agricultural land uses in the region. The Napa General Plan for example, has policies for agricultural preservation because agricultural and related activities are the primary land uses in Napa County. Napa County's Measure J - the Agricultural Lands Preservation Initiative, was passed in 1990 and is intended to preserve the County's agricultural lands, which have a General Plan land use designation of Agricultural Resource or Agricultural, Watershed and Open Space. Measure J provides that, lands designated as "Agricultural Resource" or "Agriculture, Watershed and Open Space" may not be re-designated to another land use category except by a majority vote of the people; if the land is annexed to a city; or if it is re-designated by the Board of Supervisors pursuant to procedures set forth in the initiative, and only if certain findings can be made. The General Plan at the time of adoption of Measure J, provided for a minimum parcel size of 160 acres for lands designated as Agriculture, Watershed and Open Space; and a minimum parcel size of 40 acres for lands designated as Agricultural Resource.

The recycled water use is a part of the planned water supplies and would not provide new water supplies or remove obstacle to growth beyond that discussed in the General Plan EIRs. Effects resulting from growth anticipated in the individual service areas for the Member Agencies are discussed in **Section 5.4** below.

5.4 Secondary Effects of Growth

Impact 5.1: The NBWRP would provide recycled water for urban, agricultural, and environmental uses, and as such, would contribute to the provision of adequate water supply to support a level of growth that is consistent with the amount planned and approved within the General Plans of Marin, Sonoma and Napa Counties. No appreciable growth in population or employment would occur as a direct result of construction or operation of the proposed facilities. However, development under the General Plans accommodated by the proposed project would result in secondary environmental effects, which include effects that would be significant and unavoidable.

Implementation of the proposed project would allow the Member Agencies to provide the level of treatment, conveyance, storage, and pumping capacity for production and distribution of recycled water. As discussed, the proposed project would not result in a direct increase in population or employment, however the project would offset potable water demand and assist in providing water supply that is planned under the local General Plans as discussed above in **Section 5.3**, and that could provide for new use and development that is projected to occur and is consistent with the local General Plans. Potentially adverse secondary effects could result from development of planned land uses in the project area. Because the proposed project would not induce growth beyond that discussed in the local General Plans and General Plan EIRs, the secondary effects of growth would be consistent with those discussed in the General Plans and General Plan EIRs. Secondary effects of growth identified in the local General Plan EIRs as well as the policies and mitigation measures established to minimize the effects, are summarized in the tables and discussion below for each Member Agency.

Buildout under the General Plan requires several types of infrastructure, including an adequate water supply; the proposed action would contribute to the provision of adequate water supplies, both urban and agricultural, within the service areas of the Member Agencies. The secondary impacts related to buildout under the approved General Plans within the service areas of the NBWRA Member Agencies are disclosed in the General Plan EIRs for Cities of San Rafael, Novato, Sonoma, and Napa, and the Counties of Marin, Sonoma, and Napa. A summary of impacts from the General Plan EIRs and mitigation measures that would reduce the impacts to less-than-significant levels is discussed below.

The NBWRA Member Agencies do not have the authority to control land use and growth within the recycled water service areas identified under the NBWRP, or to mitigate for the secondary effects of those land use decisions. Marin, Sonoma and Napa Counties, and the incorporated cities of San Rafael, Novato, Sonoma and Napa, have primary land use jurisdiction and responsibility to regulate growth through the land use planning and development approval

process. Other agencies, which have decision-making authority to implement mitigation measures related to secondary impacts of growth in the project area are shown in **Table 5-12**.

TABLE 5-12
AGENCIES HAVING PLANNING AND MITIGATION AUTHORITY

Agency	Authority
Marin, Sonoma and Napa County	Responsible for planning, land use, and environmental protection of unincorporated areas. Of particular importance are development of presently undeveloped lands, provision of regional solid waste management facilities, and regional transportation, air quality and flood control improvement programs.
Cities of Novato, Sonoma and Napa	Responsible for adoption of the General Plan and various planning elements and local land use regulations. Adopts and implement local ordinances for control of noise and other environmental concerns. Participates in regional air quality maintenance planning through adoption of local programs to control emissions via transportation improvements. Responsible for enforcing adopted energy efficiency standards in new construction.
Local Agency Formation Commission	Empowered to approve or disapprove all proposals to incorporate cities to form special districts or to annex territories to cities or special districts. Also empowered to guide growth of governmental service responsibilities.
Regional Water Quality Control Board, San Francisco Bay Region	Shares responsibility with State Water Resources Control Board (SWRCB) to coordinate and control water quality. Formulates and adopts water quality control plans. Implements portions of the Clean Water Act when the U.S. EPA and SWRCB delegate authority, as is the case with issuance of National Pollutant Discharge Elimination System (NPDES) permits for waste discharge, reclamation, and storm water drainage.
State Department of Health	Responsible for the purity and potability of domestic water supplies for the state. Assists SWRCB and Regional Water Quality Control Boards (RWQCBs) in setting quality standards.
California Air Resources Board	Responsible for adopting and enforcing standards, rules, and regulations for the control of air pollution from mobile sources throughout the state.
Bay Area Air Quality Management District	Adopts and enforces local regulations governing stationary sources of air pollutants. Issues Authority to Construct Permits and Permits to Operate. Provides compliance inspections of facilities and monitors regional air quality. Developed the Clean Air Plan in compliance with the Clean Air Act.
U.S. Fish and Wildlife Service	Requires consultation under Section 7/10 of the Endangered Species Act for projects which could potentially impact endangered or threatened species. Prepares biological opinions on the status of species in specific areas and potential effects of proposed projects. Approves mitigation measures to reduce impacts and establishes Habitat Conservation Plans (HCPs).
U.S. Army Corps of Engineers	Issues permits to place fill in waterways pursuant to Section 404/408 of the Clean Water Act.
California Department of Fish and Game	Issues Stream Bed Alteration Agreements for projects potentially impacting waterways.

SOURCE: ESA

Local land use plans and specific development plans have been adopted and approved, with the local lead agency adopting a statement of overriding consideration for these significant unavoidable effects. The Proposed Project would not increase the nature, number or severity of significant effects associated with planned development.

5.4.1 No Project Alternative

Under the No Project Alternative, project implementation would not occur. There would be no change from existing conditions. No alteration of the location, rate, or timing of growth within the project area would occur, and no secondary effects related to that growth would occur. For discussion of the No Project Alternative, future conditions, please refer to the No Action Alternative below.

5.4.2 No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. These projects would provide an estimated 1,067 AFY of recycled water supply.

Future baseline conditions (2020) would include continued development under the Marin, Sonoma, and Napa General Plans, as well as the General Plans for each of the municipalities served by the Member Agencies. Development of both urban and agricultural uses would continue to place pressure on surface and groundwater resources within the region, particularly during high demand summer months, when the reliability of supplies is reduced. Population within the region is anticipated to increase by approximately 4 percent by 2010 and 2015 and by 2 percent through 2030, as shown in **Table 5-13**. **Tables 5-14** and **5-15** show the total projected water use in the individual service areas and total water use by agency contractors and customers.

TABLE 5-13
CURRENT AND PROJECTED POPULATION IN THE SERVICE AREAS

	2005	2010	2015	2020	2025	2030
NMWD	58,816	60,676	64,072	66,271	67,569	68,669
City of Sonoma	10,733	12,348	12,642	12,740	12,838	12,984
Rural Sonoma Valley	30,100	30,900	30,900	30,900	31,100	31,200
City of Napa*	76,400	79,000	82,000	84,100	85,600	87,300
Total	**176,049**	**182,924**	**189,614**	**194,011**	**197,107**	**200,153**

* - City of Napa includes population for the MST area.

SOURCE: SCWA 2005; ABAG 2005; ABAG, 2007

TABLE 5-14
TOTAL PROJECTED WATER USE IN THE PROJECT AREA (AFY)

	2005	2010	2015	2020	2025	2030
Surface Water Supplies						
North Marin Water District		12,648	13,484	13,930	14,244	14,473
MMWD[1]		6,915	6,790	11,300	12,800	14,300
City of Sonoma		2,783	2,817	2,806	2,813	3,071
Valley of the Moon		3,748	3,751	3,787	3,798	3,817
City of Napa[2]		17,370	18,084	18,798	19,272	19,746
Groundwater Supplies						
Sonoma Valley						
MST Area[2]	3,313		3,710			4,601
Carneros[2]	2,547		3,467			5,719
Total			52,103			65,727

1 Value does not represent total water use, but only that amount supplied by SCWA.
2 West Yost & Associates, 2005.

SOURCE: SCWA, 2005; Napa County, 2008a.

TABLE 5-15
TOTAL WATER USE BY SONOMA COUNTY WATER AGENCY CONTRACTORS AND CUSTOMERS (AFY)

	Volume (AFY)				
	2010	2015	2020	2025	2030
Water Contractors					
City of Cotati	1,323	1,380	1,511	1,552	1,612
North Marin Water District	12,648	13,484	13,930	14,244	14,473
City of Petaluma	12,848	13,803	14,114	14,732	14,660
City of Rohnert Park	7,116	7,380	7,662	7,767	7,831
City of Santa Rosa	27,884	29,456	30,957	32,633	33,820
City of Sonoma	2,783	2,817	2,806	2,813	3,071
Valley of the Moon Water District	3,748	3,751	3,787	3,798	3,817
Town of Windsor	5,075	5,550	6,120	6,354	6,523
Other Customers					
California American Water Company	1,326	1,368	1,409	1,429	1,451
Forestville Water District	552	563	575	588	602
Kenwood	175	181	186	190	193
Lawndale	66	70	74	83	86
Penngrove	400	457	532	569	604
Marin Municipal Water District	6,915	6,790	11,300	12,800	14,300
Direct Diverters	0	0	2,448	3,671	4,895
Total	82,859	87,050	97,411	103,223	107,939

SOURCE: SCWA, 2005

5.4.3 Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 horsepower (HP) of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity. There would be no additional storage required.

The secondary effects of growth associated with the proposed facilities under Phase 1 would be similar to the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

LGVSD

Under Phase 1, LGVSD would provide 202 AFY of recycled water to Hamilton Field, located within unincorporated Marin County. This area is served by NMWD, and provision of recycled water would be implemented in partnership with that agency. Between 2005 and 2030, water supplies for NMWD are anticipated to increase from 10,310 AFY to 15,694 AFY, or approximately 5,384 AFY. This includes development of approximately 1,020 AFY of recycled water.

Phase 1 would provide 202 AFY of recycled water from LGVSD within the NMWD service area. This represents approximately 3 percent of the projected 5,384 AFY of additional water supply projected by NMWD as necessary to meet demands associated with buildout under the approved General Plans within its service area. Phase 1 would provide approximately 20 percent of the 1,020 AFY of recycled water identified as part of this identified water supply. Because recycled water is included within the water supply planning of NMWD and SCWA, and Phase 1 is consistent with the amount of recycled water identified, provision of recycled water is not anticipated to affect the rate, timing, or distribution of urban growth within Marin County.

While project implementation would not induce or alter growth trends in Marin County, it would, as part of the overall water supply conditions, enable secondary effects associated with development under the approved General Plans to occur. **Table 5-16** summarizes the secondary effects of growth identified under the Marin County General Plan. A discussion of mitigation measures and policies identified to reduce potential impacts to the degree feasible is also provided.

Mitigation Measures (Marin County)

Mitigation measures proposed in the Marin County General Plan EIR (2007b) include the following measures:

- *Traffic*: Include new establishing policies that would require new transit nodes near new residential areas to reduce vehicle miles traveled, improved operational conditions at specific intersections, and road improvements or additions including reconfiguring or widening some roadways to accommodate more lanes.

TABLE 5-16
IMPACTS ASSOCIATED WITH MARIN COUNTY GENERAL PLAN IMPLEMENTATION

Marin County
Significant and Mitigable Impacts
• Addition of new/ expanded agricultural processing, retail sales, and visitor-serving uses on agricultural land, which conflicts with agricultural land use.
• Development of residential land uses is incompatible with established land use.
• Conversion of undeveloped, agricultural or open space lands to urban uses.
• Compatibility of land uses with existing adjacent communities.
• Increased pollutants and sedimentation reduction in water quality.
• Reduction in groundwater recharge.
• Alteration of drainage patterns.
• Increased exposure of structures to subsidence and settlement.
• Structural damage from soil properties.
• Impacts to water supply from septic systems.
• Permanent direct habitat loss and accompanying reduction or elimination of dependent wildlife, including some special status species.
• Permanent loss of sensitive natural communities (creeks, vernal pools, swales, riparian habitat, freshwater marshes, native grasslands, significant trees, etc).
Significant and Unavoidable Impacts
• Growth within unincorporated areas.
• Convert farmland/prime agricultural soils to urban uses.
• Increase in vehicle miles traveled.
• Impacts to local roadways and intersections which would result in unacceptable LOS.
• Increased volumes on local roadways.
• Inconsistent with Clean Air Plan Transportation Control.
• Buffer zones for potential source of odor/toxics.
• Increase in greenhouse gas emissions
• Temporary significant increase in noise from construction activities.
• Potential for structural damage and injury or loss of life due to impacts from strong groundshaking, including liquefaction.
• Increased risk from seismic related ground failure.
• Increased exposure of people and structures to landsliding.
• Cumulative direct and permanent loss, fragmentation of existing wildlife habitat, and obstruction of movement between habitats.

SOURCE: Marin County, 2007b

- *Air Quality*: Revise General Plan policies to consider odors and toxic air contaminants during siting of facilities; Bay Area Air Quality Management District standards; and a Climate Change Planning Process to implement the Greenhouse Gas Reduction Plan.

- *Noise*: Requiring noise studies prior to approval of any discretionary project involving a potentially significant new noise source or a noise sensitive land use in a noise-impacted area, and providing setbacks, sound attenuation barriers and appropriate building designs.

- *Groundwater*: Implement ordinances that maintain groundwater recharge and surface water runoff management, establishing a Septic Inspection, Monitoring, and Maintenance District, and implementing ordinances that address non-point source pollution, erosion, sediment control, floodplain development, and groundwater supplies.

- *Biological Resources*: Require new development to compensate for the loss of habitat through offsite mitigation and extension of wildlife corridors and actively restore aquatic habitats for listed anadromous fish. The County would also develop Habitat Monitoring Programs and ensure that future development applicants consider overall habitat values.

- *Geology*: Prepare a geotechnical report, incorporate engineering specifications to address susceptibility of a project site to liquefaction, compliance with the Alquist-Priolo Earthquake Fault Zoning Act, enforce state seismic safety standards and a limitation on the location and intensity of development in areas with significant geologic hazards, and revise policies related to seismic safety, retrofit, and location of emergency services to ensure seismic safety of new structures. This would also require the necessary retrofit of critical facilities and proper location of new emergency facilities. The County would continue to implement ordinances to ensure that new construction utilizes seismic safety design requirements, seismic shut off devices, etc.

Novato SD

Under Phase 1, Novato SD would provide 542 AFY of recycled water to the north/central NMWD service area, in partnership with NMWD. Between 2005 and 2030, water supplies for NMWD are anticipated to increase from 10,310 AFY to 15,694 AFY, or approximately 5,384 AFY. This includes development of approximately 1,020 AFY of recycled water.

Phase 1 would provide 542 AFY of recycled water from Novato SD within the NMWD service area. This represents approximately 10 percent of the projected 5,384 AFY of additional water supply projected by NMWD as necessary to meet demands associated with buildout under the approved General Plans within its service area. Phase 1 would provide approximately 57 percent of the 1,020 AFY of recycled water identified as part of this identified water supply. Taking the recycled water provided by LGVSD under Phase 1 into consideration (202 AFY), Phase 1 would provide approximately 72 percent of the 1,020 AFY of recycled water identified by NMWD. Because recycled water is included within the water supply planning of NMWD and SCWA, and Phase 1 would be consistent with the amount of recycled water identified, provision of recycled water is not anticipated to affect the rate, timing, or distribution of urban growth within Marin County.

While project implementation would not induce or alter growth trends in Marin County, it would, as part of the overall water supply picture, enable secondary effects associated with development under the approved General Plans to occur. **Table 5-17** summarizes the secondary effects of

TABLE 5-17
IMPACTS ASSOCIATED WITH CITY OF NOVATO GENERAL PLAN IMPLEMENTATION

City of Novato

Significant But Mitigable Impacts

- Increased risk to people and structures during seismic events.
- Increased risk to new development from tsunamis.
- Increased risk of Stafford Dam failure.
- Exposure to slope failure hazard.
- Construction impacts to streams from erosion and sedimentation.
- Impacts to mineral resources.
- Permanent changes in topography from earthmoving and grading activities.
- Increased exposure of people and structures to flood hazards.
- Impacts to drainage and increased flooding due to impervious surface cover.
- Impacts to streams and stream habitat from runoff and creek bank slumping
- Impacts from runoff could increase the transport of oils, greases and other residues to receiving waterways.
- Potential risk of flood from predicted sea level rise.
- Reduction of the number of trees in the City (especially Oak).
- Loss of wildlife movement or migratory corridors, and plant dispersal opportunities.
- Introduction of invasive or exotic species.
- Displacement of populations of plants and wildlife
- Adverse effects on areas of archaeological and historic importance.
- Impacts to traffic safety and residential neighborhoods from increased volumes of traffic.
- Reduced bicycle and pedestrian safety on roads, and increased demand for bikeways and pedestrian paths.
- Increased traffic congestion on City streets.
- Traffic compliance with the Congestion Management Plan.
- Substantial increase in noise levels along certain roadways.
- Compatibility of new development and surrounding noise environment.
- Consistency of new development with scale, style, and character of existing development.
- Alteration of views along designated corridors and entry points to the city.
- Increase in daytime glare and nighttime lighting.
- Construction of future sound walls will alter existing views.
- Increased amount of wastewater to be treated at existing treatment facilities.
- Inability of existing sewer collectors to collect wastewater.
- Increased demand for public water.
- Need to construct or replace water mains, storage facilities, treatment facilities, and pump stations.
- Increased demand for fire protection services.
- Need for new water mains to ensure adequate fireflows.
- Expanded use, storage, and transport of hazardous materials.
- Increased demand for recreational facilities.
- Additional amounts of solid waste.
- Exposure to electromagnetic fields.
- Conversion of agricultural land to non-agricultural uses.
- Conversion of potential open space to developed land.
- Risk to people and structures at Gnoss Field airport from surrounding development.
- Conflict between land use designation under the Sphere of Influence and land use designations under the Marin Countywide Plan
- Compatibility of residential development n areas currently used for commercial uses.
- Conversion of vacant land to housing and commercial development.

TABLE 5-17 (Continued)
IMPACTS ASSOCIATED WITH CITY OF NOVATO GENERAL PLAN IMPLEMENTATION

City of Novato
Significant and Unavoidable Impacts
• Displacement of wetlands.*
• Buildout traffic will cause portions of Highway 101 and Highway 37 to operate at unacceptable levels of service.**
• Increased number of calls for emergency medical response.
• Increased need for police protection.
Less Than Significant Impacts
• Altered traffic volumes could cause concentrations of localized air pollutants such as carbon monoxide near streets and intersections.
• Increased wastewater could exceed capacity of Novato SD facilities.
• Increased demand for fuel and energy.
• Alteration of the character of the area by implementation of the Downtown Specific Plan.
• Expansion of the City's Sphere of Influence.
• Increase in project-generated noise sources
• Increase in project-generated construction noise
• Carbon monoxide concentration along roadways.
• Impacts from transport of hazardous materials

* Mitigation measures have been established to protect wetlands, but the EIR identifies the loss of some wetlands as significant and unavoidable.
** The traffic on the highways that cause an unacceptable level of service originates from outside of Novato. Even if the City were to limit growth within its jurisdiction, the level of service along these highways would still deteriorate.

SOURCE: Leonard Charles and Associates, 1995.

growth identified under the City of Novato General Plan. A discussion of mitigation measures and policies identified to reduce potential impacts to the degree feasible is also provided.

Mitigation Measures (Novato)

Mitigation measures proposed in the Novato General Plan EIR (1995) are described below:

- *Geology*: Include policies that require geotechnical and engineering reports, professional inspection of foundation, monitor existing high priority buildings to ensure structural compliance with seismic safety standards, and provide public information on building safety. To protect new development, require proper siting of projects, setbacks from active faults, restricted development in low lying areas by the Bay, and setbacks from the Stafford Dam.

- *Cultural Resources*: Implement archaeological resources protection through a program that requires that all major development applications be reviewed for potential archaeological resources and that protection measures would be determined by a professional archaeologist.

- *Traffic*: Evaluate level of service on streets, reduce through-traffic on residential streets, and adopt and enforce a truck route to limit truck presence on residential streets. Investigate mitigation measures for projects that would cause a substantial increase in traffic noise to adjacent residential areas.

- *Aesthetics:* Prohibit development within 100 vertical feet of a designated ridgeline within a scenic area, and require development to be clustered below the ridge in areas of open or grassy hillsides. All development along the west side of the freeway from the northern edge of Novato to Atherton Avenue and from the southern edge of Novato to Ignacio Boulevard would be subject to prepare a Constraints Analysis. Implement Lighting Design Guidelines, which incorporate design guidelines for exterior lighting and recommend types of lights and lighting that address security, appearance, and intensity while protecting City views. Caltrans will perform a visual analysis for all new sound walls to show the existing and future views at critical points in order to make a determination. Adopt the Scenic Resources Overlay Zone which establishes criteria to protect ridgelines, hillsides, and other scenic resources and review development proposals on an individual basis to determine the scenic value of visual resources specific to the site. Other measures include landscaping, discouraging repetition and using traditional site design, and evaluating the compatibility with surrounding development.

- *Fire Hazards*: Continue to require all new development to meet adopted fire safety regulations (Fire Code appendix), require all development that includes private access roads to provide access to the Novato Fire Protection District, and implement the Fire Hazard on Public Lands Policy to manage public lands to minimize chances of wildfire.

- *Biological Resources*: To mitigate the impact from introduced exotic or invasive species, one measure includes implementing constraints via the Land Use Chapter Constraints Analysis to ensure pampas grass, acacia, and broom will not be planted as part of new development projects. A new policy will protect ridgelines as critical wildlife corridors to enhance biological resources. Implement Bayfront Overlay Zone in addition to a 100-foot buffer between wetlands and new development to mitigate impacts to habitat, a U.S. Army Corps of Engineers Determination of Wetlands Statement, and new programs for determining, regulating, and permitting wetlands.

- *Air Quality*: Enforce U.S. Environmental Protection Agency standards for particulate emissions when wood-burning fireplaces or stoves are installed, review all industrial development for potential impact to sensitive receptors, and require buffer zones between industrial development and sensitive receptor.

SVCSD

Under Phase 1, SVCSD would provide 874 AFY of recycled water to the city of Sonoma and surrounding areas for urban and agricultural use. Between 2010 and 2030, surface water supplies to the city of Sonoma are anticipated to increase from 2,783 AFY to 3,071 AFY, or approximately 288 AFY. Supplies to the Valley of the Moon Water District are anticipated to increase by 69 AFY from 3,748 AFY to 3,817 AFY. Under Phase 1, recycled water would be available to offset 111 AFY of urban demands in the city of Sonoma, or approximately 31% of this projected potable demand increase within the Sonoma Valley. As previously noted in Table 5-1, Sonoma County Water Agency has included provision of recycled water to the Sonoma Valley within its regional water supply projections.

Additionally, recycled water would be available to offset 1,862 AFY of agricultural groundwater pumpage. As noted in **Section 3.2, Groundwater Resources**, service to these existing agricultural users would be anticipated to offset current groundwater pumping, with some offset of local surface water diversions were present.

Because the provision of recycled water has been included within the water supply planning of SCWA for urban uses, and Phase 1 is consistent with the amount of recycled water identified, provision of recycled water is not anticipated to affect the rate, timing, or distribution of urban or agricultural growth within the City of Sonoma or Sonoma Valley.

While project implementation would not induce or alter growth trends in the Sonoma Valley, it would, as part of the overall water supply picture, enable secondary effects associated with development under the approved General Plans to occur. **Table 5-18** summarizes the secondary effects of growth identified under the City of Sonoma General Plan. **Table 5-19** summarizes the secondary effects of growth identified under the Sonoma County General Plan. A discussion of mitigation measures and policies identified to reduce potential impacts to the degree feasible is also provided.

Mitigation Measures (City of Sonoma)

Mitigation measures identified in the EIR to minimize or reduce the impacts caused by implementation of the City of Sonoma General Plan are described below:

- *Visual Resources*: Utilize high quality architectural designs in new development, preserving scenic vistas and corridors, retaining prominent natural features on project sites, and encouraging architectural designs that are consistent with the historic character of the community.

- *Land Use*: Maintain an Urban Growth Boundary to limit urban expansion, develop new General Plan policies and Specific Plan features, and contract the city's Sphere of influence.

- *Traffic*: Install road improvements along certain roads and specific intersections.

- *Noise*: Implement setbacks, sound barriers, and noise-reducing construction practices.

- *Public Services and Utilities*: Evaluate and adjust allocation to police and fire protection, and emergency medical services. Contract negotiations with SCWA to increase the City's entitlement, promotion of water conservation and recycling, and provision of maintenance and upgrading of the municipal water system to mitigate water supply demands. Increase in conservation, reclaimed water use, additional treatment facilities, and compliance with upgraded NPDES permits to mitigate wastewater service impacts.

- *Cultural Resources*: Conduct archaeological field surveys and evaluate sites containing historic structures.

- *Geology/ Hydrology*: Prepare a grading and design plan that includes erosion control and rehabilitation phases. Incorporate specific design criteria to correct for soil properties like shrink-swell to mitigate structural damage from soil properties. Implement SCWA Flood Control Design Criteria, best management practices, and provisions for permanent surface maintenance for all new development.

- *Biological Resources*: Implement offsite mitigation to compensate losses, riparian habitat restoration activities, proper siting and placement of projects and bikeways, and City cooperation with local farmers to increase habitat protection.

TABLE 5-18
SIGNIFICANT IMPACTS OF GENERAL PLAN DEVELOPMENT ASSOCIATED WITH THE CITY OF SONOMA

City of Sonoma

Significant But Mitigable Impacts

- Increased short-term and long-term erosion potential.

Significant and Unavoidable Impacts

- Conversion of undeveloped, agricultural, or open space lands to urban uses or changes in land use type.
- Compatibility of land uses with adjacent communities.
- Conversion of farmland/ prime agricultural soils to urban uses.
- Impacts to local roadways and intersections which would result in unacceptable LOS.
- Increased volumes on local roadways.
- Public transit capacities would be inadequate to meet increased traffic demand and transit demand.
- Compliance with regional air quality plan and federal air quality standards.
- New emissions generated by new development would increase air pollution and cause deterioration in regional air quality.
- Significant increase in noise for some existing residents from increased traffic, recreational activities, and commercial and industrial uses.
- Development would require additional law enforcement officers, equipment & facilities.
- Development in rural/hilly areas would increase the potential risk for wildland fires.
- Need for additional emergency medical services, fire fighters, equipment & facilities.
- Demand for school facilities may exceed available capacity, and facilities may be degraded.
- Increased need for library facilities.
- Need for new parks & recreational facilities and/or managed open space.
- Increased demand for, water supply & water service extensions.
- Increased demand for supply, treatment and distribution facilities for wastewater.
- Generation of significant amounts of solid waste, including demand for a new County landfill site.
- Growth in population and employment could lead to possible damage, destruction, or removal of recorded and unrecorded cultural resources.
- Future development has the potential to adversely affect historic resources.
- Residential, commercial and industrial growth under the plan would increase energy consumption.
- The impacts of increased population and jobs occur as secondary impacts.
- Increased need for housing units, particularly affordable housing units, as population increases.
- Substantial alteration of Valley's visual character.
- Potential for structural damage and injury or loss of life due to impacts from strong groundshaking, including liquefaction.
- Grading and excavation will permanently change the ground surface relief.
- Increased risk of pollution from the use, storage, and treatment of hazardous materials.
- Increased demand for hardrock and aggregate resources.
- Short-term erosion and associated sedimentation potentials, with impacts to water quality.
- Impacts to groundwater by reducing supply due to interruptions of recharge and upstream retention of surface flow.
- Increase of urban runoff pollutants and degradation of existing water quality.
- Increase in quantity of runoff, leading to increased flooding hazards.
- Permanent direct habitat loss and accompanying reduction or elimination of dependent wildlife, including some special status species.
- Permanent loss of significant habitat (creeks, vernal pools, swales, riparian habitat, freshwater marshes, native grasslands, significant trees, etc).
- Cumulative direct loss of wildlife habitat.

TABLE 5-18 (Continued)
SIGNIFICANT IMPACTS OF GENERAL PLAN DEVELOPMENT ASSOCIATED WITH THE CITY OF SONOMA

City of Sonoma
Less than Significant Impacts
• Changes to Land Use Designation, map, and policies. • Impacts on land use character and existing pattern of development. • Impacts to agriculture. • Compatibility with existing land uses. • Growth inducing impacts on land use or visual resources. • Impacts to population based on ABAG's growth projections. • Impacts on housing, employment, and jobs/ housing balance. • Impacts on pedestrian and bicycle paths, lanes, and rotes. • Increased demand for schools parks, or other public facilities. • Impacts from groundshaking on new development. • Increased vehicular noise, and traffic noise level compatibility with future development of adjacent land. • Increases in stationary noise. • Consistency with applicable air quality plans and air Quality standards. • Consistency with population increases and VMT projections. • Increased risk of earthquake hazards for new development. • Impacts from hazardous materials and waste.

SOURCE: City of Sonoma, 2006b

Mitigation Measures (Sonoma County)

Mitigation is identified in the EIR to minimize or reduce the impacts cause by implementation of the Sonoma County General Plan. As shown in **Table 5-19**, some impacts can be mitigated to a less than significant level, while others, despite mitigation, will remain significant or significant and unavoidable. The environmental effects of growth most commonly identified as significant and unavoidable in the service area are land use conflicts, increased traffic impacts, impacts to public utilities and services, including water supply, wastewater capabilities, and solid waste disposal. The mitigation provided for these impacts include a series of efforts and policies to be implemented.

For Sonoma County, increased short-term and long-term erosion potential can be mitigated to less than significant levels by preparing a grading and design plan that includes an erosion control and rehabilitation plan, restricting location of projects to slopes of 30 percent or more, and maintaining the natural topography of the project site.

For example, the impacts to agricultural resources are targeted by maintaining an Urban Growth Boundary to limit urban expansion, establishing agricultural zoning districts, and establishing densities and parcel sizes to protect soils for continued agricultural use. Compatibility of land uses with adjacent communities is implemented through new policies in the General Plan.

TABLE 5-19
SIGNIFICANT IMPACTS FROM GENERAL PLAN DEVELOPMENT ASSOCIATED WITH SONOMA COUNTY

Sonoma County

Significant But Mitigable Impacts

- Convert farmland/prime agricultural soils to urban uses.
- Impacts to local roadways and intersections which would result in unacceptable LOS.
- Increased volumes on local roadways.
- Development would require additional law enforcement officers, equipment & facilities.
- Need for additional emergency medical services, fire fighters, equipment & facilities.
- Water demand from urban development could exceed the existing SCWA entitlement.
- Increased demand for, water supply & water service extensions.
- Increased demand for supply, treatment and distribution facilities for wastewater.
- Growth in population and employment could lead to possible damage, destruction, or removal of recorded and unrecorded cultural resources.
- Future development has the potential to adversely affect historic resources.
- Increased short-term and long-term erosion potential.
- Structural damage from soil properties.
- Short-term erosion and associated sedimentation potentials, with impacts to water quality.
- Increase of urban runoff pollutants and degradation of existing water quality.
- Increase in quantity of runoff, leading to increased flooding hazards.
- Increased sedimentation and runoff from construction activities
- Permanent direct habitat loss and accompanying reduction or elimination of dependent wildlife, including some special status species.
- Permanent loss of significant habitat (creeks, vernal pools, swales, riparian habitat, freshwater marshes, native grasslands, significant trees, etc).
- Development could preclude future restoration of special habitats (native grasslands, oak savannas, wet meadows, vernal swales, and vernal pools).
- Cumulative direct loss of wildlife habitat.

Significant and Unavoidable Impacts

- Substantial alteration of Valley's visual character.

Less than Significant Impacts

- Impacts from growth and concentration of populations
- Increased demand for transit services.
- Impacts to air traffic safety.
- Conflict with alternative transportation.
- Decreased parking capacity or emergency access.
- Safety risk from transportation system design.
- Impacts to noise sensitive development from roadway noise, airport noise, or stationary noise.
- Impacts to water quality as a result of new development.
- Increased soil erosion and sedimentation as a result of construction activities for new development.
- Increase sewer- and septic- related water quality problems.
- Increased flood risk as a result of storm drainage alteration.
- Placement of housing within 100-year flood hazard areas.
- Impacts on jurisdictional wetlands.
- Conflict with local biological resource protection ordinances.
- Conflict with HCP or NCCP.
- Exposure of new development to expansive soils or soils unsuitable to support septic systems.

TABLE 5-19 (Continued)
SIGNIFICANT IMPACTS FROM GENERAL PLAN DEVELOPMENT ASSOCIATED WITH SONOMA COUNTY

Sonoma County
Less than Significant Impacts (cont.)
• Conflict with HCP or NCCP.
• Loss of availability of known mineral resources.
• Conversion of agricultural land to non-agricultural uses.
• Impacts to agricultural processing and support uses.
• Impacts as a result of land conversion to support agricultural tourism.
• Conversion of timberland to non-timber uses.
• impacts to community separators, scenic landscape units, scenic corridors, and scenic highways.
• Visual impacts in other urban or rural areas.
• Increased energy consumption for new land uses or development patterns.
• Increased energy consumption from building construction and retrofit.
• Exposure to population from release of hazardous materials, including areas near airports.

SOURCE: Sonoma County, 2006

Measures to mitigate some other impacts include the following:

- *Traffic*: Install road improvements along certain roads and specific intersections and integrate bicycle and pedestrian corridors with local and county-wide transit systems.

- *Traffic and Air Quality*: Identify and implement new transit opportunities, mixed-use development, and foster interagency cooperation to integrate air quality planning efforts with transportation planning. Install buffer zones and setbacks to reduce the impacts from air quality and noise on sensitive receptors.

- *Public Services and Utilities*: Expand the law enforcement staff, facilities, and equipment, and continue to prioritize efforts; evaluate fire and emergency services, incorporate California Department of Forestry safety standards, and prepare a countywide fire services master plan. Require new development to pay a fair share of new facilities and expanding existing facilities. Promote water conservation and recycling, and verify the ability of water supplies to serve new development. Increase reclaimed water use and implement programs identified in the Solid Waste Management Program.

- *Cultural Resources*: Conduct archaeological field surveys, evaluate sites containing historic structures, and County Landmarks Commissions.

- *Visual Resources*: Preserve scenic vistas, retain prominent features on project sites, and eliminate commercial and industrial uses in community separators.

- *Hazardous Materials*: Prepare and implement Hazardous Materials Management Plan and conduct proper siting of hazardous facilities.

- *Mineral Resources*: Maintain an Aggregate Resources Management Plan and prioritize production sites to minimize adverse impacts from increased demand for aggregate resources.
- *Hydrology*: Implement best management practices, and Master Drainage and Flood Control Plan, and groundwater well monitoring activities.
- *Biological Resources*: Install setbacks for structures from the edge of marshes or wetlands, offsite mitigation, design criteria, and stream conservation area.

Napa SD

Under Phase 1, Napa SD would provide 2,137 AFY of recycled water to the MST Area for agricultural, golf course, and residential landscaping uses which would include approximately 521 AFY beyond the irrigation demands of existing vineyard uses in the MST area. This additional recycled water would be available to serve varying types of land uses within the MST area. Because this recycled water is above the amount needed to offset existing groundwater pumpage, it would be available to support irrigation of various land uses (e.g., agriculture, dairy, or residential uses), and could contribute to currently un-irrigated lands within the MST area converting to irrigated agriculture uses consistent with their General Plan designations.

Water supply within the MST area is primarily limited to groundwater pumpage, with a small amount of local surface diversions. Due to declining groundwater levels in the MST area, the County Board of Supervisors adopted the Napa County Groundwater Ordinance in 1996. The ordinance requires a groundwater permit for new water supply uses on properties, including residential development and agricultural development. The ordinance requires property owners to demonstrate no net increase in groundwater use onsite, and the ability to comply with application limits, established at 0.3 AF per acre per year for new residential and vineyard development. Existing vineyard developments that intend to re-plant or re-develop would be limited to an average 0.3 AF per acre of water per year, averaged over a three year period with no annual use exceeding the total average allotment by more than 15 percent. Introduction of recycled water could affect both agricultural and residential (second unit) development trends within the MST area, which have historically been limited due to groundwater supply issues.

Agricultural Development

Assuming a use rate of 0.25 AF per acre for vineyards in Napa, the 521 AFY of recycled water beyond current irrigation demands could be capable of supporting approximately 2,086 acres of vineyards in the MST area. The Napa County General Plan (2008) provides an estimate of approximately 10,000 to 12,500 acres of new vineyard development planned in Napa County. However, due to the limits on groundwater pumping in the MST Area, the General Plan assumed that the MST area would remain consistent with existing agricultural conditions.

Therefore, provision of recycled water at the levels identified in Phase 1 would have the potential to support 2,086 acres of vineyard in the MST area. This would represent a potential 20 percent increase in vineyard acreage beyond that considered by the Napa County Board of Supervisors in approving the General Plan. It should be noted that the existing un-irrigated parcels within the MST

area are not restricted from agricultural uses that are consistent with their General Plan and Zoning designations, and that are in conformance with the Napa County Groundwater Ordinance, which provides for a usage rate of 0.3 AF per acre per year, and requires land owners to demonstrate no-net increase and fair-share practices. Therefore, the availability of an alternative supply to groundwater could be one of several contributing factors that would allow lands that are currently un-irrigated to be placed in irrigated agriculture, consistent with their General Plan land use designations.

Actual development of vineyards within the MST area would be subject to a number of requirements and ordinances established under the Napa County General Plan, including the restriction of vineyard development on slopes in excess of 30 percent. These requirements and ordinances are identified below.

- County Code Section 18.108.060 states that no construction, improvement, grading, earthmoving activity or vegetation removal associated with the development or use of land shall take place on those parcels or portions thereof having a slope of 30 percent or greater (i.e., approximately 325.5 acres in the MST area) are prohibited without an exemption or exception.

- Vineyards are allowed in all zoning districts within the MST area except within all Residential Single (RS) districts (RS:UR, RS:B-1, RS:B-2, and RS:B-5) (approximately 290.1 acres) and areas zoned Planned Development (PD) (approximately 761.8 acres).

- New vineyards that involve conversion of any drainage by 5.5 percent or greater (Hardman Creek and Tulucay Creek in the MST area) or are located on slopes averaging more than 15 percent, requiring submittal of an erosion control plan application which is subject to environmental review.

- In addition to any floodway and floodplain regulations, construction of structures, accessory structures, earthmoving, grading or removal of vegetation or agricultural uses of land are prohibited within stream setbacks pursuant to County Conservation Code Section 18.108.025.

- The County requires that all vineyard projects demonstrate that there is adequate water available prior to approval.

- Additional constraints may be identified by County required technical reports/surveys, including geotechnical reports, biological reconnaissance and floristic surveys, archaeological study, and Phase I water availability studies.

It is likely that these requirements, as well as others, would reduce potential secondary impacts related to vineyard development in the MST area to a less than significant level. Secondary effects related to development under the Napa County General Plan, including development of vineyards, are summarized in **Table 5-20**. A discussion of mitigation measures and policies identified to reduce potential impacts to the degree feasible is also provided. Potential secondary effects relating to vineyard development within the MST area would be consistent with those identified in the Napa County General Plan EIR, and may include, but not be limited to: loss of sensitive biotic communities, disturbance or loss of special status plant and animal species, obstruction to wildlife movement, migratory corridors or plant dispersal opportunities, water

TABLE 5-20
IMPACTS ASSOCIATED WITH NAPA COUNTY GENERAL PLAN IMPLEMENTATION

Napa County

Significant But Mitigable Impacts

- Conversion of State designated Important Farmland.
- Loss of County designated agricultural land*
- Impacts to roadway safety and emergency access.
- Conflicts with existing alternative transportation policies and programs, and increased demand on transit services.
- Additional demand for parking facilities due to new development and reduction of parking from roadway changes.
- Disturbance or loss of special status plant and animal species.
- Obstruction to or loss of wildlife movement, migratory corridors, and plant dispersal opportunities.
- Conflict with Conservation regulations, ordinances and policies.
- Impacts from soil erosion, sedimentation on water quality, and hydrologic alteration to fisheries.
- Groundwater interactions with surface water flows.
- Direct and indirect impacts to wildlife habitat.
- Compatibility between noise and land use.
- New development exposure to groundborne vibration.
- Compatibility of aircraft noise and land use.
- Short-term emissions from grading, construction, and operation.
- Impacts from equipment related to construction and agricultural odors
- Impacts from release and exposure to hazardous materials
- Airport hazards.
- Interference with an adopted Emergency Response of Evacuation Plan.
- Disturbance or loss of sensitive biotic communities
- Impacts of development on water quality associated with proposed ministerial projects.
- Well competition and adverse well interference.
- Structural damage from expansive soils.
- Changes to drainage patterns leading to increased runoff, streambank erosion, hillside erosions, and flood risk.
- 100-year flooding risks.
- Impacts to archeological and paleontological resources.
- Increased wastewater and need for sewer treatment and conveyance.

Significant and Unavoidable Impacts

- Conflicts with agricultural zoning and Williamson Act Contracts.
- Population, housing, and employment increases exceed ABAG projections.
- Increased travel demand, insufficient level of road service, regional traffic growth.
- Loss of sensitive biotic communities.
- Increased volume of project-generated traffic noise.
- Impacts from roadway improvements on noise-sensitive uses.
- Consistency with air quality regulations.
- Conflicts with particulate matter attainment efforts.
- Exposure to air toxic contaminants.
- Increase in long-term atmospheric greenhouse gas emissions.
- Impacts from seismic groundshaking on infrastructure
- Impacts from seismic related ground failure.
- Landslide damage to roadway infrastructure.
- Subsidence and settling.
- Reduction in groundwater supply and increased overdraft conditions.

TABLE 5-20 (Continued)
IMPACTS ASSOCIATED WITH NAPA COUNTY GENERAL PLAN IMPLEMENTATION

Napa County
Significant and Unavoidable Impacts (cont.) • Impacts to historic architectural resources. • Need for fire protection and emergency services. • Need for additional law enforcement officers and facilities. • Impacts to water supply and water quality. • Increased demand for park and recreational facilities. • Degradation of scenic resources and the visual character of the area. • Increase in daytime glare and nighttime lighting.
Less Than Significant Impacts • Agricultural and urban interface conflicts. • Division of established communities and land use conflicts. • Conflicts with relevant land use plans, policies of regulations. • Job Housing Balance. • Displacement of a substantial number of persons or housing. • Increase in project-generated noise sources • Increase in project-generated construction noise • Carbon monoxide concentration along roadways. • Impacts from transport of hazardous materials • Wildland fire. • Structural damage from expansive soils. • Septic system capacity. • Increased mineral extraction. • Increased non-point source pollution from urban runoff. • 100 year flood hazard areas • Need for solid waste services. • Impacts to electric and natural gas resources. • Need for social services. • Structural damage from expansive soils.

* Impact to County designated agricultural land would be considered Significant and Unavoidable if Measure J for the new growth boundary for American Canyon and redesignation of lands near Angwin is successful.

SOURCE: Napa County, 2008a

quality impacts from sedimentation, direct impacts to habitat, short-term emissions from grading and construction, potential increases in soil erosion and sedimentation due to construction, water quality impacts associated with proposed discretionary processes for vineyard development projects, changes to drainage patterns, and 100-year flooding risks.

However, because the potential for vineyard development in the MST area was not considered as part of the General Plan approval, the secondary effects could be beyond those considered by the Napa County Board of Supervisors in approving the General Plan.

Implementation of **Mitigation Measure 5-1a,** identified at the end of this section, would condition Napa SD and Napa County to implement the reduced **MST Local Option,** rather than the larger Phase 1 MST Project. This would ensure that recycled water is provided at levels that are consistent with current agricultural practices, and that recycled water is used to offset existing groundwater pumpage. Facilities would be sized to serve up to 1,400 AFY to existing uses within the MST area. Additional service to parcels not currently under agricultural production would be subject to approval by the County Conservation, Development and Planning Department and the Board of Supervisors.

Residential Development

Within the context of the Groundwater Ordinance, provision of recycled water to the MST area would provide an alternate water supply to groundwater pumping. This alternate supply could be used by parcel owners to offset current groundwater pumpage for irrigation, and could result in an increase in applications for additional groundwater permits under the Groundwater Ordinance.

Second dwelling units are allowed within the Agricultural Watershed (AW), Residential County (RC), and Residential Single (RS) zoning districts. Currently, there are 1,917 parcels within the MST Area that carry these zoning designations, and therefore allow for construction of second units. Analysis of existing units per parcel by Napa County Planning Department indicates that 406 parcels within the MST would have the potential to construct a second unit (maximum 1,200 square feet). Under a worst case scenario, provision of recycled water to the MST Area could result in applications to develop 406 parcels with second units, based on the use of recycled water as a groundwater offset to demonstrate no net increase in groundwater use. This is not considered significant in the context of the current zoning for these properties, which provides for second units in conformance with the Napa County Zoning Ordinance. Development of second units would be subject to the requirements of the Napa County General Plan and Zoning Ordinance.

While project implementation would not induce or alter growth trends in the MST Area, it would, as part of the overall water supply picture, enable secondary effects associated with urban and agricultural development under the approved General Plans to occur. Tables 5-20 summarize the secondary effects of growth identified under the Napa County General Plan. A discussion of mitigation measures and policies identified to reduce potential impacts to the degree feasible is also provided.

Mitigation Measures (Napa County)

The environmental effects of growth most commonly identified as significant and unavoidable in the service area are land use conflicts, increased traffic impacts, impacts to public utilities and services, including water supply, and fire and law enforcement services. The mitigation provided for these impacts include a series of efforts and policies to be implemented.

- *Land Use*: Evaluate rezoning and development to avoid conversion where feasible. Where conversion is unavoidable long-term preservation of equal acreage of other farmland must be designated. To mitigate the need for more housing units, an approval process for multi-

family residential projects will be established to allow development based on criteria. Land use conflicts with the airport and surrounding areas will be mitigated by prohibiting incompatible uses in the ALUC "D" Zone.

- *Biological Resources*: Conduct biological resources evaluation, preserve habitat and connectivity of habitat, provide replacement habitat, restore and replant native plant species, and implement a Noxious Weed Ordinance. Require fencing standards for vineyard developments. Establish a Fisheries monitoring Program, a policy that requires erosion control and restoration of impacted areas, and prohibits stream bed and streambank alteration or removal of riparian vegetation.

- *Noise*: Establish noise-related compatibility criteria, notify residents of agricultural-related noises, evaluate the potential for noise related conflict, reduce vibration sensitive development, and establish buffers for Syar Quarry. Conduct noise analysis when road improvements may cause impacts to sensitive receptors to prescribe barrier features. Acceptable noise levels will be established for sensitive receptors (schools, hospitals).

- *Public Services*: Implement policies that require new facilities and adequate access to facilities, consultation with emergency agencies, compliance with fire safety standards and evacuation plans, and availability of alternate power sources to be used during emergencies. Require new development to verify access to wastewater services prior to approval of the project. Require dedication of more open space and trails, and require fees from new developments.

- *Traffic*: Establish standards for adequate level of service on roads, prepare traffic analyses prior to approving projects, require new development to pay a fair share for road improvements, encourage alternative forms of transportation, provide transit facilities for future development, and provide bicycle lanes during road improvements. The General Plan will require that new development be concentrated so densities can support development of transit services and pedestrian facilities. Parking is also identified as a significant impact, but mitigation that requires adequate parking to meet demand and replacement parking will minimize the impact.

- *Air Quality*: Include provision of incentives energy efficient forms of transportation, enforcement tailpipe emissions standards, evaluation of project-specific air quality impacts, and establishment of emission standards for county vehicles. Other measures include dust control, demolition requirements for lead and asbestos, construction emission control measures, and buffer and control requirements for odor and Toxic Air Contaminants.

- *Visual resources*: Continue the Napa County Viewshed Protection Program, retention of trees along public roadways, implement the standards for transmission lines, and requirements for new development to be compatible with visual standards. Landscape improvements along roadways, limited street lighting, reduce use of reflective building materials mitigate the impacts from glare and night lighting.

- *Cultural resources*: Conduct onsite cultural resource investigations by qualified archaeologists, followed by immediate notification to the County Planning Department.

- *Hydrology*: Implement the Napa County Conservation Regulations and a Stormwater Management and Discharge Control Ordinance, develop an erosion control plan, establish water quality monitoring, enforce stream setbacks, and implement best management practices for agricultural and resources practices (i.e. forestry practices, etc.). To reduce competition of groundwater well use, hydrogeologic studies must be conducted for all new

wells to determine effect on adjacent wells. No new wells will be drilled in areas that experience saltwater intrusion. Expansion of land uses that could result in drainage impacts and runoff require mitigation measures like a policy that requires post-development conditions not to increase flood events, comply with the Basin Plan, and include drainage improvements to prevent increased flooding impacts.

- *Geology*: Require seismic, geologic evaluations for all projects. Projects that are located in susceptible areas will not be approved. Measures to prevent damage from landslides include planting on slopes, grading requirements for slopes over 15 percent, hillside lot requirements.

- *Utilities*: Impacts to water supply would also be significant and unavoidable despite requiring new projects to demonstrate adequate water supply availability. Since the General Plan does not prohibit continued vineyard development, standards for mitigation of impacts to biotic communities and oak woodlands should be established, impacts to wetlands should be avoided, and stream setbacks will be required

5.4.4 Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.5 mgd of tertiary capacity, and 1,020 AF of storage. This would make available 6,455 AFY of recycled water for urban, agricultural, and environmental uses. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,243 HP of pumping capacity, treatment facilities providing 7 mgd of tertiary capacity, and 955 AF of storage and would provide 6,655 AFY of additional recycled water for use.

LGVSD

No additional facilities or service beyond those identified in Phase 1 would be provided by LGVSD under the Basic System. Therefore, impacts would be equivalent to those identified under Phase 1.

Novato SD

The Basic System would include construction of an additional 2.6 miles of pipeline to the Petaluma River. No additional service is provided by this pipeline. Therefore, impacts would be equivalent to those identified under Phase 1.

SVCSD

The Basic System would increase service to the Sonoma Valley service area. Impacts would be contained within and consistent with those identified for Phase 1. Therefore, impacts would be equivalent to those identified under Phase 1.

Napa SD

The Basic System would include facilities to provide 1,055 AFY to the Carneros East service area. Recycled water supplies would be used to offset existing groundwater and local surface water uses for irrigation, as the Carneros East area has not been officially identified as a groundwater deficient area and therefore is subject to less restrictive requirements than the parcels in the MST area under the Napa County Groundwater Ordinance. As such, the provision of recycled water is not anticipated to affect the rate, level, or distribution of agricultural production in the Carneros East area.

5.4.5 Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2, 542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage. This would make available 11,250 AFY of recycled water for urban, agricultural and environmental uses.

The secondary impacts of growth associated with the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of Member Agency service areas is provided below.

LGVSD

The Partially Connected System would extend service from LGVSD to the Peacock Gap Golf Course in San Rafael, making approximately 409 AFY of recycled water available for irrigation uses. **Table 5-21** summarizes the secondary effects of growth identified under the San Rafael County General Plan. A discussion of mitigation measures and policies identified to reduce potential impacts to the degree feasible is also provided.

Mitigation Measures (San Rafael)

The EIR lists the following measures to mitigate impacts that are identified as significant. The mitigation measures are described according to the resource areas.

- *Air Quality*: Create a setback for projects proposed within 500 feet of large highways and include a health analysis and modeling to minimize impacts to sensitive receptors from emission of odors and toxic contaminants.

- *Hazardous Materials*: Implement a new program to require the City of San Rafael to survey existing industrial facilities within quarter-mile of schools to determine the presence of hazardous materials and risk of a release to mitigate impacts from hazardous materials or waste near schools. Restrict siting of facilities that could increase risk of release in close vicinity of schools.

TABLE 5-21
IMPACTS ASSOCIATED WITH SAN RAFAEL GENERAL PLAN IMPLEMENTATION

City of San Rafael

Significant and Mitigable Impacts

- Impacts from odors and toxics.
- Impacts from nighttime lighting and glare.
- Impacts to special status plant and animal species.
- Direct and indirect impacts to sensitive natural communities.
- Exposure of people and structures to potential adverse seismic effects (groundshaking).
- Exposure of people or structures to seismic related ground failure.
- Impacts to property and structures from ground subsidence hazards.
- Impacts from construction of septic tanks on soils incapable of supporting these systems.

Less Than Significant Impacts

- Conflict with applicable land use or other plans.
- Incompatible land uses and changes to neighborhood character.
- Growth and concentration of population.
- Employment growth rate.
- Jobs-to-housing ratio.
- Increased demand for bicycle routes, pedestrian facilities, and transit services.
- Consistency with the Clean Air Plan.
- Consistency with the Clean Air Plan Transportation Control Measures.
- Increased traffic noise.
- Increased exposure from stationary noise sources.
- Increase airport noise.
- Impacts to future noise sensitive development.
- Demand for fire and emergency services.
- Increased potential for wildland fires.
- Exposure to underground hazardous wastes.
- Demand for school services.
- Wastewater treatment capacity- north of Puerto Suello Hill.
- Potential to exceed landfill capacity.
- Increased demand for electricity, natural gas, and gasoline.
- Impacts on archaeological and prehistoric resources.
- Impacts on historic or cultural resources.
- Impacts to scenic vistas and visual resources.
- Alteration of the visual setting and character of the City.
- Conflicts with adjoining development relative to height.
- Impacts to federally protected wetlands.
- Restriction of movement of native wildlife.
- Loss of habitat and invasive plant species introduction.
- Adverse effects from expansive soils.
- Increase in loading of petrochemical contaminants, heavy metals, and pesticides into drainageways.
- Increases in impervious surface cover and impact to groundwater resources.
- Incremental increase in project-induced erosions and sedimentation.
- Increases in peak flow rates on flooding and/or stormwater drainage system capacity.
- Exposure of new development to levee failure.
- Need for expanded stormwater drainage system.

TABLE 5-21 (Continued)
IMPACTS ASSOCIATED WITH SAN RAFAEL GENERAL PLAN IMPLEMENTATION

City of San Rafael
Less Than Significant Impacts (cont.)
• Exposure of people or structures to flooding hazards. • Risk of inundation by seiche, tsunami, or mudflow. • Conversion of farmland to non-agriculture use.
Significant and Unavoidable Impacts
• Level of service at various intersections. • Impacts to on-street parking along various streets. • Increased rail noise. • Release of hazardous materials. • Exacerbation of deficiency in park facilities. • Demand for police services that exceeds existing capacity. • Demand for library services. • Wastewater Treatment capacity- south of Puerto Suello Hill. • Potential for demand to exceed water supplies. • Exposure of people or structures to landslide events.

SOURCE: City of San Rafael, 2004.

- *Aesthetics*: Prepare a lighting plan for parking lots to minimize impacts from new sources of light or glare and nighttime lighting. A lighting plan would include provisions to shield light sources from off-site view, downcast lights, prevent light from escaping, use low intensity, indirect light sources, and restricting mercury, metal halide, and other intense bright lights.

- *Biological Resources*: Implement programs that require surveying of vacant sites to determine presence or absence of species, on-site preservation or off-site compensation for lost habitat (i.e., easements), and restoration efforts to mitigate impacts to biological resources. The Oak Savanna and Woodland Habitat Protection Program would mitigate the loss of sensitive natural communities by requiring compensation.

- *Geology*: Implement the following measures:

  - A General Plan policy that would require building inspections, inspections of other facilities, storm drains, levees, freeways, and other infrastructure, and require the Community Development Department to develop a list that identifies and prioritizes hazardous facilities;
  - A policy that directs the City to coordinate with the Intergovernmental Panel on Climate Change to determine sea level rise and needs for levee improvements;
  - A program for levee upgrading;
  - An amendment to the shoreline embankments policy that includes rip-rap inspection and erosion protection; and

- A General Plan policy to discourage the use of septic systems unless there is no other alternative, in which case additional requirements would need to be met.

- *Mitigation Measures identified for impacts that would remain significant and unavoidable*: SMART shall conduct a detailed noise assessment and implement mitigation to reduce noise impacts to an acceptable level for any rail project within its right-of-way.

  A new policy that requires remediation and cleanup in order to develop on sites where hazardous materials have impacted soil or groundwater will be required to mitigate releases of hazardous materials.

- *Public Services: Police*: Determine the existing and projected facility needs of the police departments, obtain funding for improvements, and construct additional facilities. Additional facilities that would need to be constructed are specified in other mitigation measures to improve drainage, sediment control, and particulate matter reduction.

- *Parks:* Construct recreational facilities, establish creek and drainageway setbacks, and reduce runoff.

- *Library Services*: Implement policies that would limit the impacts from new library facility construction, like setbacks, runoff reduction, and sediment control.

- *Water Services*: To meet projected water demand, MMWD will implement measures to promote conservation, research new water supplies (like desalination), and construct necessary infrastructure.

- *Wastewater Services:* Determine the need and cost of improvements, analyze storage alternatives, increase facilities, and assess collection systems.[5]

- *Construction Impacts*: Implement creek and drainageway setbacks, reducing runoff and sedimentation, and controlling particulate matter pollution.

The Partially Connected System would also include provision of supplies from LGVSD north to the Sears Point area via an approximately 6.5 mile pipeline connection to Novato SD facilities. Please refer to the discussion of growth issues in the Sears Point area in the Novato SD discussion, below.

Novato SD

The Partially Connected System would include provision of 968 AFY of recycled water to the Sears Point area from Novato SD. These supplies would be used to offset existing potable water use in the area. As discussed above in Section 5.3.1, Novato SD plans for expanded recycled water use in the area. Potential recycled water users include development on Hamilton Air Force Base and other users along Highway 101. Sears Point area under the proposed project could be a potential user area. The impacts would be equivalent to those identified under the Basic System.

[5] Although wastewater flows would not exceed the treatment capacity of the LGVSD facilities, wastewater flows generated south of Puerto Suello Hill will exceed the capacity of Central Marin Sanitation District facilities.

SVCSD

The Partially Connected System would include provision of recycled water to the Southern Sonoma Valley service area, providing approximately 1,662 AFY of recycled water to existing agricultural users for groundwater and surface water offset. Impacts would be contained within and consistent with those previously identified in the Sonoma County General Plan in Table 5-19. Therefore, impacts would be equivalent to those identified under the Basic System.

Napa SD

The Partially Connected System would include extension of service north in MST area, north in the Carneros East area, and east of the Napa SD Soscol WWTP, providing approximately 4,221 AFY of recycled water. Impacts would be contained within and consistent with those previously identified in the Napa County General Plan in Table 5-20. Therefore, impacts would be equivalent to those identified under the Basic System.

5.4.6 Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3, 907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

LGVSD

No additional facilities or service beyond those identified in the Partially Connected System would be provided by LGVSD under the Fully Connected System. Therefore, impacts would be equivalent to those identified under the Partially Connected System.

Novato SD

Under the Fully Connected System, the service indentified in the Partially Connected System to the Southern Sonoma Valley would be provided by Novato SD instead of SVCSD. The amount of recycled water would be 1,587 AFY and would allow SVCSD to provide service north to the Central Sonoma Valley. Impacts would be contained within and consistent with those previously identified in the Novato General Plan in Table 5-17. Therefore, impacts would be equivalent to those identified under the Partially Connected System.

SVCSD

Under the Fully Connected System, SVCSD would extend service north to users in the Central Sonoma Valley service area. This would provide an additional 1,511 AFY to offset existing groundwater and local surface water uses. Impacts would be contained within and consistent with those previously identified in the Sonoma County General Plan in Table 5-19. Therefore, impacts would be equivalent to those identified under the Partially Connected System.

Napa SD

No additional facilities or service beyond those identified in the Partially Connected System would be provided by Napa SD under the Fully Connected System. Therefore, impacts would be equivalent to those identified under the Partially Connected System.

Mitigation Measures

Mitigation Measure 5-1a: In order to maintain consistency with the Napa County General Plan, Napa County and Napa SD will approve the MST Local Options 1 and/or 2. This will provide approximately 530 AFY of recycled water that would be available for the existing users in the MST area. Trunk facilities may be sized to accommodate service of up to 1,400 AFY to existing agricultural irrigators only. Any expansion of service beyond the 1,400 AFY or provision of service to new land uses would be subject to approval by the County Planning Department and the Napa County Board of Supervisors.

Impact Significance after Mitigation: Implementation of Measure 5-1a would avoid the potential for direct impacts relating to growth inducement in the MST area. However, provision of recycled water within each of the NBWRP services would contribute to secondary effects of growth associated with buildout under approved General Plans within each service area. Mitigation programs have been established for these impacts, however, some of these impacts may remain significant and unavoidable.

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CHAPTER 6
Alternatives Analysis

6.1 Introduction

The National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require that an Environmental Impact Statement (EIS) and an Environmental Impact Report (EIR) describe and evaluate a range of reasonable alternatives to a project or to the location of a project, which would feasibly attain most of the basic project objectives and avoid or substantially lessen significant project impacts. This chapter describes the development of the project alternatives, presents the project alternatives, evaluates the alternatives for consistency with stated project objectives, summarizes and compares the environmental impacts and economic feasibility of the alternatives, in order to make recommendations on the environmentally superior alternative.

CEQ regulations require federal agencies to:

a. Rigorously explore and objectively evaluate all reasonable alternatives and, for alternatives that were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

b. Devote substantial treatment to each alternative considered in detail (reasonable alternatives), including the preferred alternative, so that reviewers may evaluate their comparative merits.

c. Include reasonable alternatives not within the jurisdiction of the lead agency.

d. Include the No Action Alternative. “No action” is defined as the most likely future that could be expected to occur in the absence of the project. Where this future is different from the existing conditions, the differences should be clearly defined.

The CEQA Guidelines set forth the following criteria for selecting alternatives:

1. “. . . [T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.” §15126.6(b))

2. “The range of potential alternatives shall include those that could feasibly accomplish most of the basic purposes of the project and could avoid or substantially lessen one or more of the significant effects.” §15126.6(c)

3. "The specific alternative of 'no project' shall also be evaluated along with its impacts." §15126.6(e)(1)

4. "The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could meet most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making." §15126.6(f)

According to NEPA, alternatives considered, but not found to be technically feasible or reasonable, should be presented briefly, along with the reasons they were eliminated from further analysis. Examples of reasons for elimination are: (1) failure of the alternative to meet the requirements of the purpose of and need for the action, (2) the alternative cannot be technically implemented, (3) the alternative is prohibitively greater in cost or in environmental impacts than the other alternatives, or (4) the alternative cannot be reasonably implemented. A complete listing of all alternatives seriously considered or publicly discussed in the scoping process should be included.

In general, there are two types of alternatives that may be reviewed in an EIR: (1) alternatives *to* the project that are other projects entirely, or other approaches to achieving the project objectives rather than the project or modified project; and (2) alternatives *of* the project that include modified project components, such as alternative project sites or processes and/or modified facilities, layout, size, and scale. This chapter evaluates both types of alternatives in order to develop a reasonable range of alternatives for evaluation in this EIR/EIS and describes the alternatives of the project that were carried forward for further analysis. This chapter also describes alternatives to the project that were not discussed further and the reasons for which they were not carried forward for analysis.

6.2 Alternatives Development

The development of alternatives for the NBWRP was completed as part of the Feasibility Study process required under Reclamation's Title XVI Program. Alternatives development included three phases, as described below.

- In 2005, NBWRA prepared the *Phase 1 Engineering and Economic/ Financial Analysis Report* that represented the initial results of a recycled demand study in the project area, possible scenarios using different areas and facilities, and preliminary cost estimates.

- In 2006-2007, NBWRA prepared the *Phase 2 Engineering and Economic/ Financial Analysis Report* presented a more detailed engineering development and evaluation of best agreed alternatives.

- In 2008, as part of Phase 3, NBWRA completed the engineering and financial evaluation and the final feasibility report. The *Phase 3 Engineering and Economic/ Financial Analysis Report* or Phase 3 Feasibility Study refined the engineering evaluation and includes the economic analysis of alternatives and documentation of the financial capability of the Member Agencies. The Phase 3 Feasibility Study described the action area and the key management issues and needs within the action area, identifies recycled water opportunities in the action area, develops and analyzes alternative measures that could address the

identified water management needs, presents an economic and financial analysis of the project, and presents an overview of associated legal and institutional requirements (CDM, 2008).

Phase 3 Feasibility Study

NBWRA undertook a comprehensive planning process that first identified a wide range of preliminary alternatives for the Proposed Action and then screened this array for selection of alternatives that would be developed for detailed analysis. Criteria such as the ability to achieve Member Agency water management goals, to meet projected future water supply needs, and to maintain environmental and water quality directed the initial development of the alternatives (CDM, 2008).

The first step in the alternatives development process was to identify the broad characteristics that could be used to formulate alternatives. The initial alternatives were formed as combinations of options under the following characteristics:

- Existing and potential recycled water projects in the action area: Water and wastewater agencies in the action area developed several existing recycled water projects and identified recycled water projects for future implementation. Additional potential recycled water project areas were identified by grouping land uses either in major agricultural or landscaping areas or in areas between existing and proposed areas. Fifteen recycled water projects, including six new water reuse areas, were identified (see **Table 6-1**).

TABLE 6-1
RECYCLED WATER PROJECTS CONSIDERED

Existing Projects	Agency-Identified Projects	New Potential Water Reuse Areas
Sonoma Valley County Sanitation District Reuse Area	Peacock Gap Golf Course	Petaluma South
Marin Municipal Water District Reuse Area	North Marin Water District Urban Reuse Project	Southern Sonoma Valley
Stone Tree Golf Course Reuse Area	Sonoma Valley Recycled Water Project	Sears Point
	Carneros East	Central Sonoma Valley
	Milliken-Sarco-Tulucay Creeks Area	North Central Sonoma
	Napa Salt Marsh Restoration	Napa Valley

SOURCE: CDM, 2008

- Extent of the recycled water distribution network: The recycled water projects were grouped into alternatives based on different sizes and different connections of the future recycled water system. The options for the recycled water distribution system varied from virtually independent operation of each wastewater treatment plants (WWTP) to all WWTPs operating jointly serving demand throughout the entire action area. **Table 6-2** provides the six distribution system approaches that were studied.

TABLE 6-2
RECYCLED WATER PROJECTS CONSIDERED

Service Area Approaches	Features
Basic Regional System	Emphasis on local area near each WWTP
Regional Systems	Linkage of local systems to allow multiple treatment plants primarily in Petaluma/Novato and Napa/Sonoma.
Regional Systems with Ponds	Connect several WWTPs and add ponds for storage.
Expanded Regional System without Petaluma	Provide larger agricultural area, emphasis on environmental benefits to Napa salt marsh (Petaluma would not be served).
Expanded Regional System with Petaluma	See above. The area will include Petaluma.
Interconnected Regional System	Connect all five WWTPs and maximize reuse.

SOURCE: CDM, 2008

- Storage options to increase use of recycled water: Three options for water storage were developed to formulate initial alternatives.
  - *No New Storage*: The only storage available in the recycled water system would be existing storage at the WWTPs and a portion of existing individual landowner storage ponds.
  - *Partial Storage*: Storage would include existing storage at the WWTPs, some existing landowner storage ponds and new low-impact storage.
  - *Full Storage*: This option would include as much storage as needed to reuse all available recycled water supplies. New surface storage would be necessary.

The 15 recycled water projects (see Table 6-1) and six recycled water distribution systems (see Table 6-2) were evaluated with the six storage options (discussed above) to develop a total of 18 initial alternatives.

The next step in the alternatives development process was to screen the initial alternatives. The characteristics of the alternatives were examined to verify that they were technically, environmentally, politically, and legally feasible. The screening was based on the quantity of recycled water served, quantity of the discharge from the WWTP reduced, amount of storage required, and planning-level cost estimates.

Alternatives Identified but Not Considered Further

The alternatives not considered further include the “Regional System,” “Expanded Regional System without Petaluma,” and “Expanded Regional System with Petaluma” (CDM, 2008). The “Regional System” was rejected due to prohibitive costs and insufficient use of recycled water. The “Expanded Regional System without Petaluma” was similar to the Partially Connected System, but did not include Petaluma. Although Petaluma has declined participation in the Proposed Action, Petaluma’s inclusion during the initial project development process was important to demonstrate regional coordination. The third alternative, the “Expanded Regional

System with Petaluma", included connection to Petaluma, but the design did not provide adequate storage for the anticipated recycled water demand

The NBWRA screened the 18 alternatives based upon storage options, cost, regional partnership opportunities, and system logistics to select three alternatives that would be carried forward to further analysis. Thus, the alternatives that are analyzed in this EIR/EIS in addition to the required No Project and No Action Alternatives (under CEQA and NEPA) are: the Basic System, the Partially Connected System, and the Fully Connected System.

6.3 Alternatives of the Project Analyzed in the EIR/EIS

The alternatives that were carried forward and analyzed in this EIR/EIS are described below:

No Project Alternative: Discussion of the No-Project Alternative must examine the existing conditions and reasonably foreseeable future conditions that would exist if the project were not approved (CEQA §15126.6(e)). Under the No Project Alternative, the NBWRA would not implement construction of facilities identified under the Proposed Action to provide a reliable recycled water distribution system to serve the water users in the LGVSD, Novato SD, SVCSD, and Napa SD service areas.

No Action Alternative: Consideration of the No Action Alternative is required under NEPA. The No Action Alternative represents a "future-without-project" scenario: a continuation of existing conditions for an estimation of the most reasonable future conditions that could occur without implementation of any action alternatives. The No Action Alternative assumes that there is no joint project among the Member Agencies. It represents the "current status" in which additional wastewater treatment capacity and water recycling occurs strictly from the implementation of local plans for expansion, and the potential need to develop additional potable water supplies continues to be a regional challenge. In general, each Member Agency would continue to implement individual water recycling projects, subject to the availability of funding and completion of the CEQA process. The No Action Alternative would likely result in a smaller increment of water recycling projects within the region. For example it is anticipated that SVCSD would implement only one of the four pipeline systems identified in the Sonoma Valley Recycled Water Project (SVRWP) EIR, based upon the ability to fund such construction. Additionally, the lack of federal funding may delay or preclude the implementation of individual planned projects, due to the need to increase user rates in order to provide funds for implementation.

Basic System: The Basic System would expand recycled water programs currently in operation within the Member Agency service areas. It is the most localized of the three alternatives and emphasizes the implementation of local recycled water projects. Each agency would put first priority on the delivery of recycled water to its local projects. Local projects include the NMWD Urban Reuse Project, the SVRWP, the Napa Salt Marsh Pipeline, and projects in the Napa Milliken-Sarco-Tulucay (MST) Creeks area and the Carneros East areas. All WWTP treatment and distribution systems are sized and designed to serve their respective local users. Interconnectivity between WWTPs would only occur between SVCSD and Napa SD to serve the Napa Salt Marsh Restoration Area. The Basic System would include implementation of a system consisting of 83 miles of pipeline, construction of facilities onsite at existing WWTPs to provide an additional 7.8 million gallons per day (mgd) of tertiary treatment capacity, and development of 1,020 acre-feet of

storage, primarily at existing or planned storage ponds at the WWTPs. In total, the Basic System would provide 6,655 acre-feet of new recycled water for irrigation use, and an additional 5,825 for habitat enhancement.

Partially Connected System: The Partially Connected System represents the median alternative. Each agency would put first priority on the delivery of recycled water to its local projects. Additional local projects include the Peacock Gap Golf Course area, further development of the NMWD Urban Reuse Project, the SVRWP, and projects in Napa MST, and the Carneros East areas. Interconnectivity between WWTPs would be expanded between Novato SD and LGVSD to serve the Sear's Point Area, in addition to the connection between SVCSD and Napa SD WWTPs. The Partially Connected System would provide 11,250 AFY of new recycled water for irrigation use and an additional 2,933 AFY for habitat enhancement. Under this alternative, SCWA would implement a system consisting of installation of 139 miles of new pipelines, construction of facilities onsite at the existing WWTPs to provide 15.9 mgd of tertiary treatment capacity, and development of approximately 2,220 acre-feet of storage, primarily at existing or planned storage ponds at the WWTPs.

Fully Connected System: The Fully Connected System would maximize the local and regional reuse of recycled water, and incrementally, would have the greatest facility requirements of the three alternatives considered. It would include all of the components described under the Partially Connected System in addition to pipelines to extend service and connect all four WWTPs. The Fully Connected System requires a total of 153 miles of conveyance pipeline, construction of facilities onsite at the existing WWTPs to provide an additional 20.8 mgd of tertiary treatment capacity, and development of approximately 2,220 acre-feet of storage, primarily at existing or planned storage ponds at the WWTPs. The Fully Connected System would provide 12,761 AFY of new recycled water for irrigation use, and an additional 3,085 AFY for habitat enhancement.

Table 6-3 summarizes the elements of each of the three alternatives.

6.4 Alternatives Analysis

In accordance with the CEQA Guidelines, the alternatives considered in this EIR include those that 1) could accomplish most of the basic objectives of the project, and 2) could avoid or substantially lessen one or more of the significant effects of the project. To provide the appropriate context for this alternatives analysis, the project objectives and key significant effects are summarized below.

6.4.1 Project Objectives

NBWRA developed the following objectives for the Proposed Action to promote the expanded beneficial use of recycled water in the North Bay region to:

- Offset urban and agricultural demands on potable supplies;
- Enhance local and regional ecosystems;
- Improve local and regional water supply reliability;
- Maintain and protect public health and safety;

TABLE 6-3
SUMMARY OF PROJECT COMPONENTS UNDER THE ACTION ALTERNATIVES

Project Components	No Action Alternative	Basic System	Partially Connected System	Fully Connected System
Pipeline (in miles)				
LGVSD	0.0	5.88	17.94	17.94
Novato SD	4.4	12.44	35.90	47.00
SVCSD	13.1	33.72	42.00	44.20
Napa SD	0.0	31.14	44.08	44.08
Total Pipeline	**17.5**	**83.00**	**139.00**	**153.00**
Pump Station (in horsepower)				
LGVSD	0.0	71	91	424
Novato SD	250	258	586	966
SVCSD	662	1,328	2,037	2,912
Napa SD	0.0	2,896	3,280	3,175
Total Pump Stations	912	**4,553**	**6,115**	**7,477**
Storage Capacity				
LGVSD	0.0	0.0	0.0	0.0
Novato SD	0.0	0.0	0.0	0.0
SVCSD	65.0	1,020.0	2,220.0	2,220.0
Napa SD	0.0	0.0	0.0	0.0
Total New Storage[(1)]	**65.0**	**1,020.0**	**2,220.0**	**2,220.0**
Tertiary Treatment Capacity Increase (million gallons per day)				
LGVSD	0.0	0.4	1.2	1.2
Novato SD	0.5	1.2	5.1	10.0
SVCSD	0.0	0.0	0.0	0.0
Napa SD	0.0	5.9	9.6	9.6
Total Tertiary Treatment Capacity Increase	**0.5**	**7.5**	**15.9**	**20.8**
Potable Offset (acre-feet per year)				
LGVSD	0	202	409	409
Novato SD	193	542	2,038	3,701
SVCSD	874	2,719	4,381	4,230
Napa SD	0	2,992	4,221	4,221
Total Potable Offset	**1,067**	**6,655**	**11,250**	**12,761**

[1] This total only represents new storage. The Proposed Action will rely on existing storage and retrofit existing facilities to accommodate storage needs. Please refer to Chapter 2, Project Description for a break down of new versus existing storage by alternative.

NOTE: The No Project Alternative would be equivalent to existing conditions and no project elements would be implemented, therefore not included in the table.

SOURCE: CDM, 2009

- Promote sustainable practices;
- Give top priority to local needs for recycled water, and;
- Implement recycled water facilities in an economically viable manner.

6.4.2 Significant Effects

Chapter 3, Environmental Setting and Impact Analysis, presents the impact analysis for the three project alternatives. No significant and unavoidable environmental impacts are anticipated

for projects under the Basic, Partially Connected, or Fully Connected Systems. Based on the analysis presented in **Chapter 3**, implementation of the Proposed Action could result in significant short-term construction and long-term operational impacts to aesthetics, air quality, biological resources, hazards and hazardous materials, water quality, land use, noise, public services and utilities, and traffic. The impacts would be reduced to a less-than-significant level by mitigation measures listed in **Chapter 3**. Provided below is a summary of the significant, but mitigable, environmental impacts identified by resource area that are considered in the evaluation of the alternatives to identify the alternative(s) that can avoid or reduce the environmental effects and still meet the basic project objectives.

There are no significant and unavoidable impacts anticipated for the Proposed Action, therefore the project alternatives are compared by assessing the impacts under each alternative to demonstrate environmental superiority. In general, the magnitude of significant impacts would be in proportion to the extent of facilities required under each of the project alternatives. Greater infrastructure involves greater construction activities or construction over a larger area for a longer duration as well as a greater extent of operational activities. **Table 6-4** summarizes the potentially significant, but mitigable impacts identified. In general, impacts would be the least for the Basic System, which has the least amount of infrastructure, and greatest for the Fully Connected System, which has the greatest amount of infrastructure. A summary of individual issue areas is provided below.

TABLE 6-4
SIGNIFICANT BUT MITIGABLE IMPACTS IN PROPORTION TO THE PROPOSED FACILITIES UNDER EACH ALTERNATIVE

Temporary/ Construction-Related Impacts	Long-Term Impacts
• Erosion-related water quality impacts or loss of topsoil. • Increased potential for fuels and hazardous material release into surface water. • Important Farmland: dust and disruption of irrigation. • Dewatering that could result in discharge of turbid waters into the storm drain systems/ creeks. • Temporary emissions of criteria pollutants. • Disturbance to recreational facilities. • Impacts to scenic corridors. • Disruption of utilities. • Disturbance of historical or cultural sites, including from ground borne vibration. • Increase in noise levels and vibration. • Exposure to and/ or release of hazardous chemicals. • Effect on response times of emergency providers. • Need for assistance in traffic management. • Wildland fire hazard.	• Increased surface area of impervious surfaces. • Permanent impact to visual character. • Risk from fault rupture, severe ground shaking, liquefaction, or earthquake induced landslides capable of causing injury, structural damage, pipeline rupture and service interruption. • Location on an unstable geologic unit / soil that that could result in landslide, lateral spreading, subsidence, liquefaction or collapse causing damage to structures and service disruptions. • Increased exposure of the public and structures to flooding. • Increased stormwater runoff. • Increases to ambient noise. • Increase in water/ sewer charges.

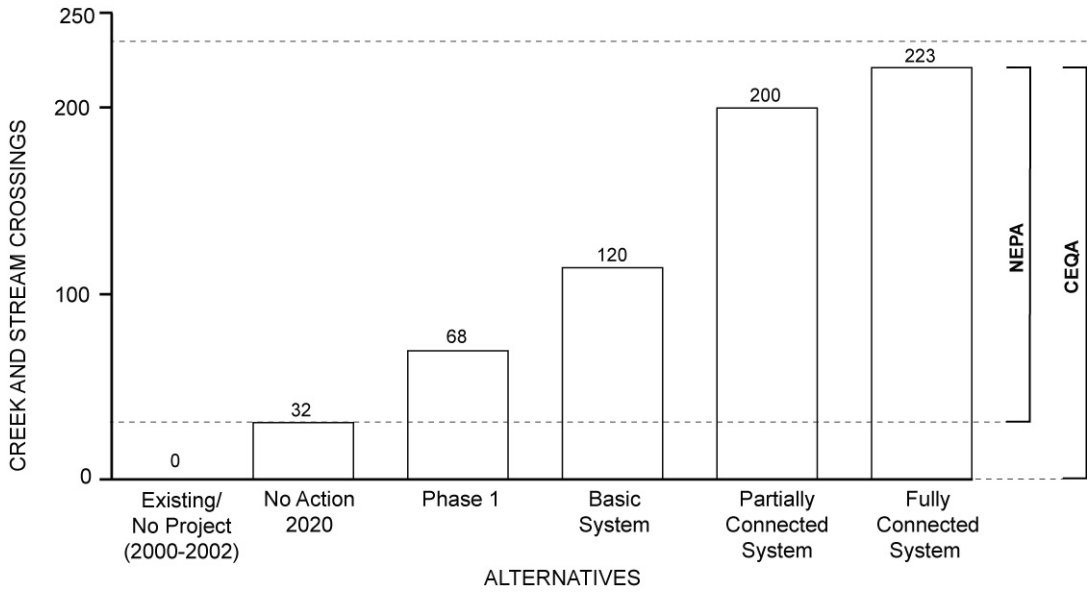
SOURCE: ESA, 2009.

Surface Hydrology

Based on the analysis conducted in **Section 3.2, Surface Hydrology,** potentially significant impacts under all the alternatives, including exposure of new facilities to flooding, increased impervious surface area, and alteration of storm flow patterns, would occur in proportion to the amount of facilities required under each alternative. The impacts would be mitigated to a less-than-significant level with incorporation of recommended mitigation measures. There would be no significant and unavoidable impacts on surface hydrology. A series of comparisons of stream crossings, discharge reduction, and number of facilities potentially impacted by sea level rise, which are generally in proportion to the amount of infrastructure, illustrates the differences in impacts for all the alternatives.

Chart 6-1 summarizes the number of stream crossings for the Basic System, Partially Connected, and Fully Connected Systems. Similarly, the Basic System would have the least amount of impervious surface area due to new facilities. Based on this comparison, the Basic System would require the least amount of stream crossings, and therefore cause the least impact on existing drainage patterns.

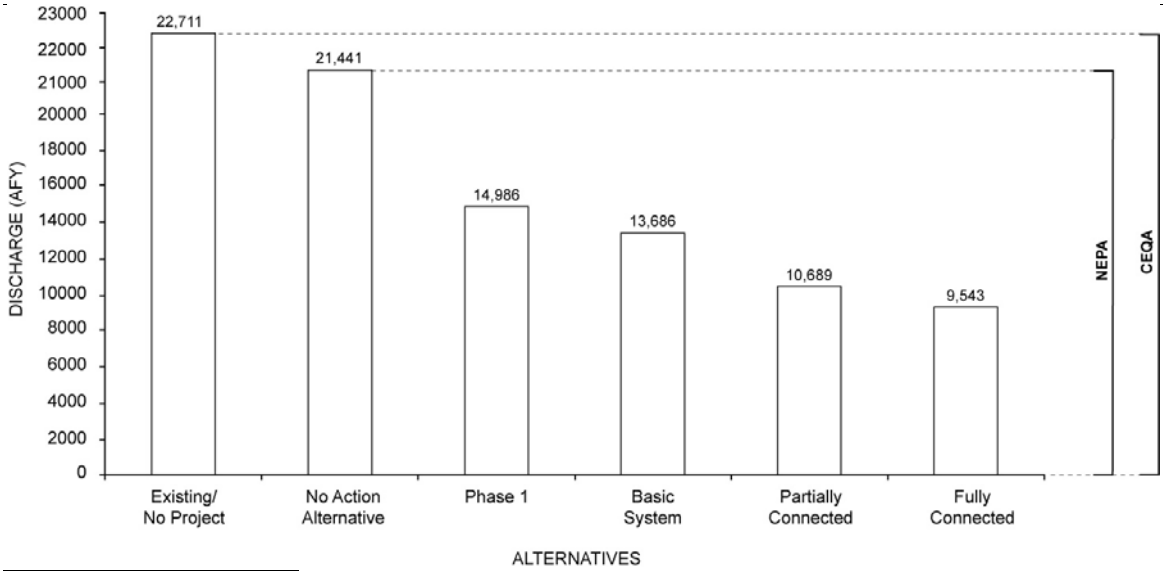
CHART 6-1
SUMMARY OF STREAM CROSSINGS BY ALTERNATIVE



SOURCE: ESA, 2009.

One of the project objectives is to enhance local and regional ecosystems, which can be partially achieved by reducing the treated wastewater discharge to surface water. The Fully Connected System would distribute the most recycled water for beneficial use, resulting in the largest reduction in treated effluent discharge to surface waters compared to the other alternatives. As shown in **Chart 6-2**, the amount of discharge reduction under the Basic System and the Partially

CHART 6-2
SUMMARY OF WASTEWATER DISCHARGE BY ALTERNATIVE



SOURCE: CDM, 2009; ESA, 2009.

Connected System is similar. The Partially Connected System would discharge approximately 20 percent less effluent than the Basic System, while the Fully Connected System would discharge approximately 11 percent less effluent than the Partially Connected System.

The potential for the number of new facilities that could be affected by sea level rise is summarized in **Table 6-5**. The Basic System has the least number of facilities that would potentially be affected. Therefore, although it would provide the least amount of recycled water, the Basic System would have the least amount of infrastructure construction, the least amount of stream crossings, and the least amount of new facilities that could be affected by sea level rise.

TABLE 6-5
COMPARISON OF ALTERNATIVES BASED ON SURFACE HYDROLOGY

	No Project Alternative	No Action Alternative	Phase 1	Basic System	Partially Connected System	Fully Connected System
Stream Crossings	0	32	68	120	200	223
Discharge (AFY)	22,711	21,441	14,986	13,686	10,689	9,543
Number of Facilities Potentially Affected by Sea Level Rise	0	1	3	5	8	8

SOURCE: CDM, 2009; ESA, 2009.

Groundwater

The analysis in **Section 3.3, Groundwater,** determined that proposed facilities would not significantly affect shallow groundwater levels and natural groundwater fluctuations. The Proposed Action would not cause localized increases in groundwater levels over the long-term, therefore the impact on structures or flooding patterns would be less than significant. The use and storage of recycled water would not significantly affect groundwater quality for potable and agricultural uses. Similarly, impervious surfaces constructed under the Proposed Action would not significantly affect groundwater recharge in the action area. There would be no significant and unavoidable impacts on groundwater. Comparison of groundwater pumping reduction, which is generally in proportion to the size and number of facilities under each alternative, illustrates the environmentally superior alternative.

Charts 6-3 and **6-4** demonstrate the amount of potential groundwater pumping reduction for the project alternatives in the Sonoma Valley and Napa MST areas. The impact under CEQA is shown as the difference between the No Project Alternative and the project alternatives and the impact under NEPA is shown as the difference between the No Action Alternative and the project alternatives. **Chart 6-3** shows that the groundwater pumping reduction in the Sonoma Valley area would be the same under all three alternatives except for the No Project and No Action Alternatives. Chart 6-4 focuses on the amount of groundwater pumping reduction in the MST area only, to provide a better basis for comparison among the alternatives. Based on the comparison in Chart 6-4, both the Partially Connected System and the Fully Connected System would provide a substantial offset of potable demand and would have the potential to reduce total groundwater pumping requirements by approximately 52 percent in the Napa MST area (see **Chart 6-3**). The Basic System would provide a 39 percent reduction in groundwater pumping compared to the No Project and No Action Alternatives. Based on these comparisons, as summarized in **Table 6-6**, the Fully Connected System would provide the greatest environmental benefit by offsetting the most groundwater use.

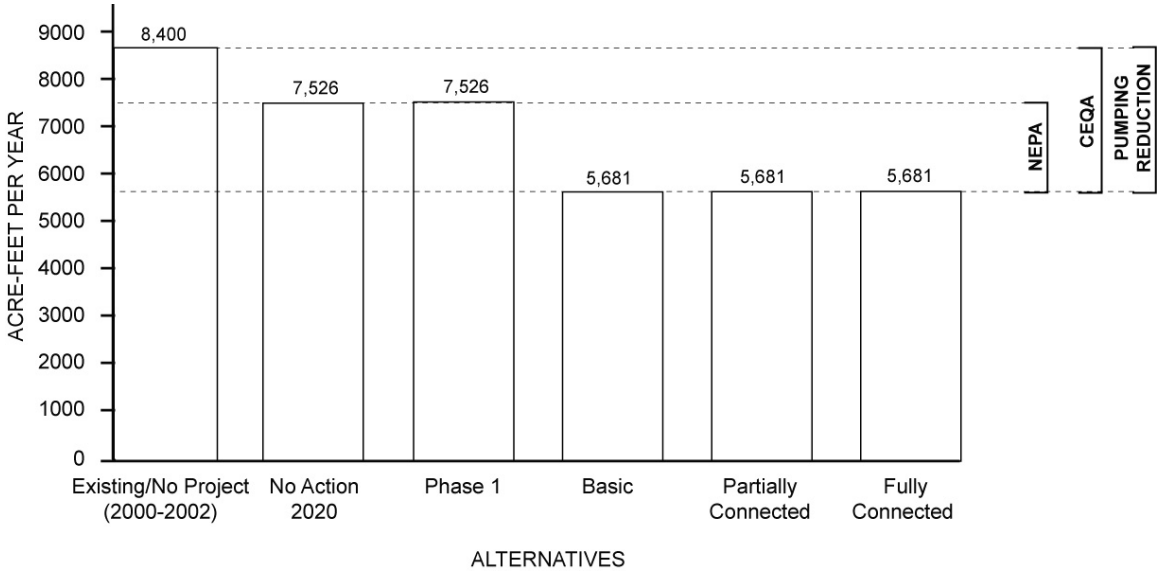
Water Quality

As discussed in **Section 3.4, Water Quality,** the impacts would include short-term construction-related stormwater impacts and long term effects related to recycled water use such as incidental runoff and beneficial impacts such as reduced discharge to surface water and water reuse for habitat restoration. The level of significant short-term construction impacts would be similar under the Partially Connected and Fully Connected Systems, while the Basic System involves the least amount of facilities, and therefore would result in fewer impacts.

Biological Resources

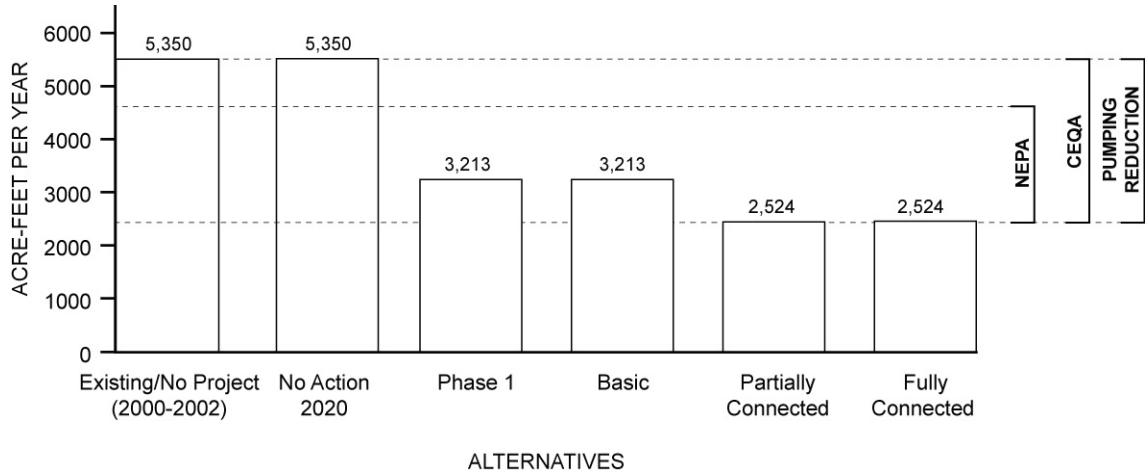
As discussed in **Section 3.5, Biological Resources,** the impacts to biological resource would include short-term construction-related impacts to wetlands, streams, and riparian habitat and special-status species such as California Red-Legged Frog and burrowing owl, fish and invertebrates. Based on this comparison of significant impacts on biological resources, the level of significant short-term construction impacts would be similar under the Partially Connected and Fully Connected Systems, while the Basic System involves the least amount of facilities, and therefore would result in the least amount of disturbance to biological resources.

CHART 6-3
SUMMARY OF POTENTIAL OFFSET IN
SONOMA VALLEY GROUNDWATER PUMPING UNDER EACH ALTERNATIVE



SOURCE: CDM, 2009; ESA, 2009.

CHART 6-4
SUMMARY OF POTENTIAL OFFSET IN
NAPA MST AREA GROUNDWATER PUMPING UNDER EACH ALTERNATIVE



SOURCE: CDM, 2009; ESA, 2009.

TABLE 6-6
COMPARISON OF ALTERNATIVES BASED ON SURFACE HYDROLOGY

	No Project Alternative	No Action Alternative	Phase 1	Basic System	Partially Connected System	Fully Connected System
Total Groundwater Pumping (AFY)						
Sonoma Valley	8,400	7,526	7,526	5,681	5,681	5,681
Napa MST	5,350	5,350	3,213	3,213	2,524	2,524
Percent Reduction						
Sonoma Valley	0	10	10	32	32	32
Napa MST	0	0	39	39	52	52

SOURCE: CDM, 2009; ESA, 2008.

	No Project Alternative	No Action Alternative	Phase 1	Basic System	Partially Connected System	Fully Connected System
Total Groundwater Pumping (AFY)						
Sonoma Valley	8,400	7,526	7,526	5,681	5,681	5,681
Napa MST	5,350	5,350	3,213	3,213	2,524	2,524
Percent Reduction						
Sonoma Valley	0	10	10	32	32	32
Napa MST	0	0	39	39	52	52

SOURCE: CDM, 2009; ESA, 2009.

Land Use

Based on the analysis conducted in **Section 3.6, Land Use,** the Proposed Action would not divide existing communities or conflict with land use plans and policies; the impacts would be less-than-significant. There could be significant construction-related impacts to agricultural resources under all three alternatives, in proportion to the size and number of facilities implemented under each alternative. However, these impacts would be mitigated to a less-than-significant level.

As noted in Section 3.6, the temporary impacts to agricultural land could occur only during the short-term construction period and would be mitigated to a less-than-significant level. This impact assumes a worst case scenario regarding right of way acquisition along pipeline routes. It is anticipated that all pipelines would be constructed within public rights of way, such that this impact would be completely avoided. A comparison between the alternatives shows that the amount of temporarily affected farmland would be similar under both the Partially Connected and Fully Connected Systems, and lower under the Basic System. The impact under CEQA is shown as the difference between the No Project Alternative and the project alternatives and the impact under NEPA is shown as the difference between the No Action Alternative and the project alternatives. **Table 6-7** provides a comparison of alternatives based on affected acres of farmland.

TABLE 6-7
COMPARISON OF ALTERNATIVES BASED ON AFFECTED FARMLAND (acres)

	No Project Alternative	No Action Alternative	Basic System	Partially Connected System	Fully Connected System
Prime Farmland	0	26.5	44.6	69.2	72.2
Farmland of Statewide Importance	0	15.9	85.3	106.1	107.4
Unique Farmland	0	0.0	24.3	31.0	37.0
Farmland of Local Importance	0	52.8	109.3	166.6	175.9
Total Important Farmland	**0**	**95.3**	**263.5**	**372.9**	**392.5**

SOURCE: CDM, 2009; ESA, 2009.

Traffic

As discussed in **Section 3.7, Transportation and Traffic,** the impacts would include short-term construction-related impacts to level of service, circulation patterns, alternative transportation, parking demand, accident potential, and wear and tear on haul routes. The level of significant short-term construction impacts would be similar under the Partially Connected and Fully Connected Systems, while the Basic System involves the least amount of facilities, and therefore would result in the least amount of disturbance to traffic conditions.

Air Quality

As discussed in **Section 3.8, Air Quality,** the impacts would include increase in criteria pollutants, toxic air contaminants, and greenhouse gas emissions. The level of significant short-term construction impacts would be similar under the Partially Connected and Fully Connected Systems, while the Basic System involves the least amount of facilities, and therefore would result in fewer impacts.

Noise

As discussed in **Section 3.9, Noise,** the potentially significant, but mitigable impacts would include short-term construction-related noise and vibration. The level of short-term construction impacts would be similar under the Partially Connected and Fully Connected Systems, while the Basic System involves the least amount of facilities, and therefore would result in the least amount of construction related noise. Similarly, the Basic System would have the least amount of recycled water delivery, and therefore, the least amount of pumping related noise.

Hazardous Materials

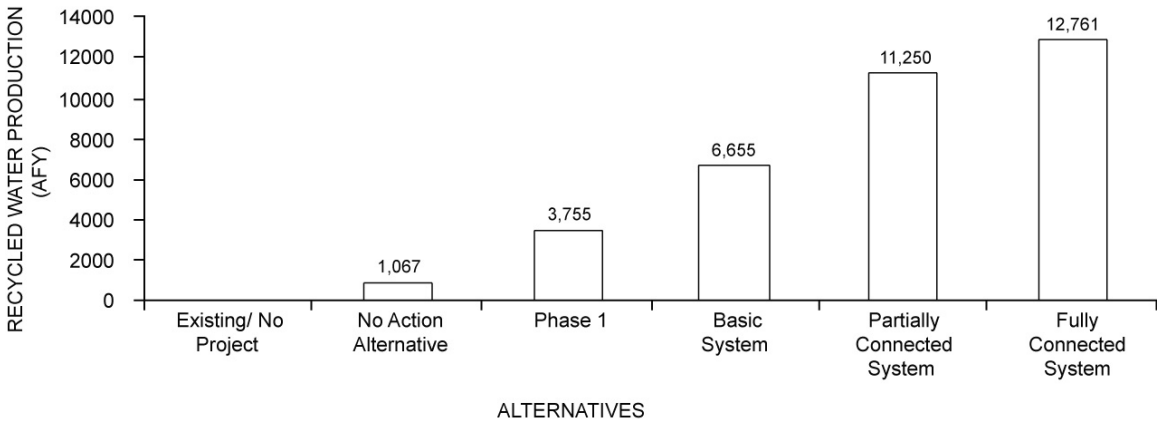
As discussed in **Section 3.10, Hazardous Materials,** the impacts would include the potential for short-term construction-related exposure or accidental release of materials common to construction. Additionally, some facilities would be located within wildland fire hazard areas. The level of significant short-term construction impacts would be similar under the Partially

Connected and Fully Connected Systems, while the Basic System involves the least amount of facilities, and therefore would result in the least amount of potential exposure during construction.

Public Services and Utilities

Based on the analysis conducted in **Section 3.11, Public Services and Utilities,** the Proposed Action would create a less-than-significant demand for power. There could be significant impacts to public services under all the alternatives except the No Project Alternative and the impacts would be in proportion to the size and number of facilities implemented under each alternative. **Chart 6-5** differentiates among alternatives based on the increase in recycled water use and offset of potable water supply. Significant temporary and long-term impacts to public services as a result of construction and operational activities, such as increased response times for emergency service providers, need for police and fire assistance during construction, and temporary disruption to utility services, would occur in proportion to the size and number of facilities proposed under each alternative, however the impact would be mitigated to a less-than-significant level. Implementation of the Proposed Action would have a beneficial impact to the offset of potable water supply use.

CHART 6-5
SUMMARY OF PRODUCTION OF RECYCLED WATER FOR BENEFICIAL USE AND OFFSET OF POTABLE WATER DEMAND BY ALTERNATIVE



SOURCE: CDM, 2009; ESA, 2009.

The Fully Connected System would require maximum emergency service assistance during construction, create the most barriers within emergency access routes, and provide the most opportunity for disruption of public services, such as power outages, road closures, and water service interruption. However, based on Chart 6-5, the Fully Connected System would generate the most recycled water to offset potable demand, which would include Russian River water offsets (see **Table 6-8**).

TABLE 6-8
COMPARISON OF ALTERNATIVES BASED ON REUSE AND OFFSET

	Basic System	Partially Connected System	Fully Connected System
Total Recycled Water (AF)	6,655	11,250	12,761
Russian River Demand Offset (AF)*	1,179	2,022	2,148

* Equivalent to recycled water use for urban landscape and irrigation purposes in Marin and Sonoma areas.

SOURCE: CDM, 2009; ESA, 2009.

Cultural Resources

Based on the analysis conducted in **Section 3.12, Cultural Resources,** the Proposed Action would not significantly affect the setting of historic or archaeological resources. There could be significant impacts to unidentified human remains and buried archaeological materials in sensitive areas from construction activities and ground-borne vibration under all the alternatives, except the No Project Alternative and the impacts would occur in proportion to the number and size of the facilities implemented under each alternative. However, the significant impacts would be mitigated to a less-than-significant levels after implementation of the recommended mitigation measures. There would be no significant and unavoidable impacts to cultural or historic resources.

Based on this comparison of significant cultural resource impacts under the different alternatives, the Basic System involves the least amount of facilities, and therefore would result in the least significant impacts. There would be fewer construction sites and less excavation required for the implementation of the Basic System.

Recreation

Based on the analysis conducted in **Section 3.13, Recreation,** there would be a significant temporary impact to recreational facilities under all the alternatives except for the No Project Alternative, in proportion to the number and size of the facilities implemented under each alternative. However, incorporation of the recommended mitigation measures would reduce the impacts to recreational resources to a less-than-significant level. Thus, there would be no significant impacts on recreation.

Based on this comparison of significant impacts on recreational resources, the level of significant short-term construction impacts would be similar under the Partially Connected and Fully Connected Systems, while the Basic System involves the least amount of facilities, and therefore would result in the least amount of disturbance to recreational facilities.

Aesthetics

As discussed in **Section 3.14, Aesthetics,** the impacts would include short-term construction-related impacts to scenic vistas, scenic corridors, impacts from new sources of light, and permanent

impacts to visual character. The level of significant short-term construction impacts and long-term effects would be similar under the Partially Connected and Fully Connected Systems, while the Basic System involves the least amount of facilities, and therefore would result in the least amount of construction related visual effects and permanent impacts to scenic vistas.

Socioeconomics

Section 3.16, Socioeconomics, describes the increase in jobs, wages and salaries, and output in the regional economy, as part of the project impacts, which would occur in proportion to the number and size of facilities implemented under each alternative. Construction of the treatment plant upgrades, pipelines, pump stations, and storage reservoirs, would require employment of engineers, construction supervisors, and general construction laborers. These activities would result in economic effects, or increases in jobs, wages and salaries, and economic output in the regional economy. There would be no adverse significant and unavoidable impacts to the regional economy under the individual alternatives.

To differentiate among the three project alternatives, **Chart 6-6** provides for a comparison of regional economic impacts. **Chart 6-6** illustrates the direct and secondary economic benefits that would be experienced under each alternative. The impact under CEQA is shown as the difference between the No Project Alternative and the project alternatives and the impact under NEPA is shown as the difference between the No Action Alternative and the project alternatives. Based on this analysis, the Fully Connected System would result in the greatest amount of economic benefits.

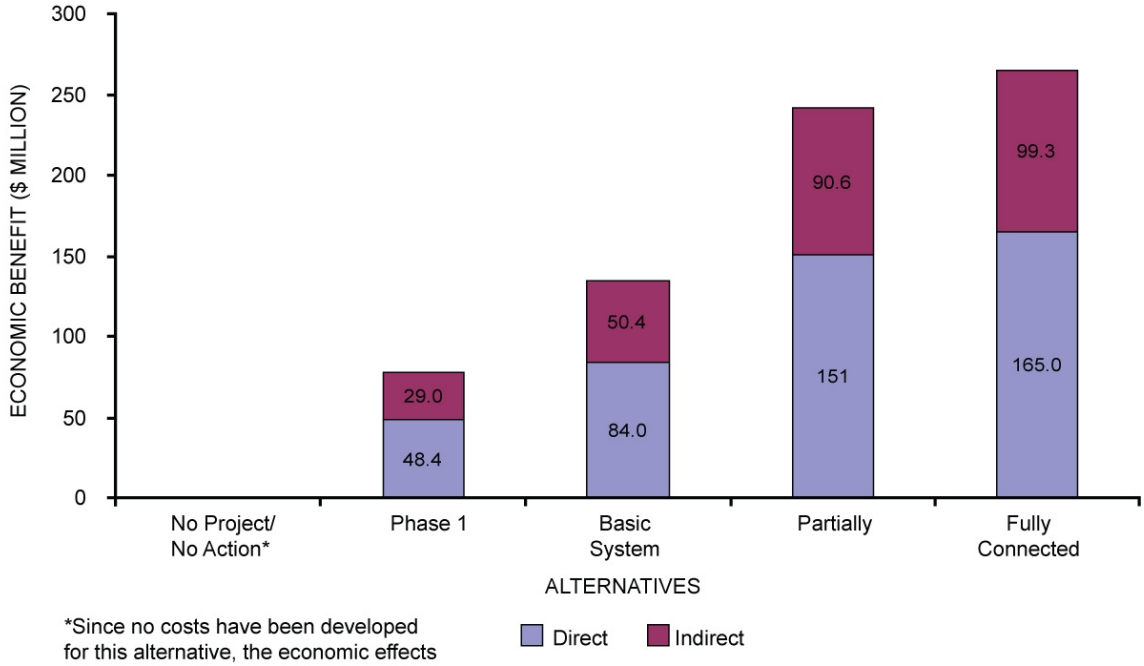
The analysis in Section 3.16, Socioeconomics, also concluded that customer fees would increase as the project costs increase. As a basis of comparison between alternatives, notwithstanding that funding plans have not been formulated for any of the alternatives, the Fully Connected System would have the potential for the greatest adverse impact to disposable incomes because it is the most expensive of all the alternatives.

Based on this comparison of significant adverse socioeconomic impacts under the three alternatives (see **Table 6-9**), the Basic System would involve the least amount of facilities, which would result in the least amount of economic benefit from construction labor requirements, however would have the least overall project costs and result in the least amount of customer fees.

6.4.3 Economic Feasibility

The economic feasibility of the project alternatives was assessed by comparing the costs that would be incurred for implementation of the individual alternatives. The Phase 3 Feasibility Study presented an economic and financial capability analysis to determine the cost-effectiveness of the Proposed Action. The economic and financial capability analysis is prepared according to the U.S. Department of the Interior Bureau of Reclamation (Reclamation) Title XVI Water Reclamation and Reuse Program Feasibility Study Directives and Standards WTR 11-01 (CDM, 2008).

CHART 6-6
SUMMARY OF IMPACTS ON REGIONAL ECONOMY BY ALTERNATIVE



*Since no costs have been developed for this alternative, the economic effects were not quantified in dollars through use of IMPLAN multipliers. Implementation of this alternative would result in beneficial, but minor, impacts to the regional economy relative to the existing conditions.

SOURCE: CDM, 2008; ESA, 2009.

TABLE 6-9
COMPARISON OF ALTERNATIVES BASED ON SOCIOECONOMIC IMPACTS

	No Project Alternative	No Action Alternative	Basic System	Partially Connected System	Fully Connected System
Economic Benefit					
Direct (million $)	0	48.4	84.0	151.0	165.0
Indirect (million $)	0	29.0	50.4	90.6	99.3

SOURCE: CDM, 2008; ESA, 2009.

The life cycle costs analysis calculates annual capital costs of implementation of Phase 1 projects over a 50-year period of analysis using a 3 percent real discount rate and adds annual operations and maintenance (O&M) costs (see **Table 6-10**). As shown in Table 6-10, the life cycle cost analysis indicates the lowest costs for the Basic System.

TABLE 6-10
LIFE CYCLE COST ANALYSIS

Life Cycle Costs (dollars $)	Basic System	Partially Connected System	Fully Connected System
	Phase 1	Phase 1	Phase 1
Total Capital Costs	$100,400,000	$101,100,000	$102,300,000
Annual Capital Costs	$3,902,096	$3,929,301	$3,975, 940
Annual O&M Costs	$1,270,000	$1,272,000	$1,277,000
Total Annual Costs	$5,172,096	$5,202,301	$5,252,940
Supply (AF)	3,756	3,756	3,756
$ per acre-foot	$1,377	$1,385	$1,339

6.5 Summary of Comparison of Project Alternatives

The following analysis examines each of the proposed alternatives (i.e., No Project Alternative, No Action Alternative, the Basic System, Partially Connected System, and Fully Connected System) for their ability to meet the stated project objectives (see summary in **Table 6-11)**, their ability to reduce or avoid potential impacts, and their implementation costs. **Table 6-12**, at the end of this section, provides a summary the various trade-offs associated with each Action Alternative.

Comparison of Action Alternatives

Table 6-4 describes the ability of the project alternatives to meet each objective listed above. In general, each of the Proposed Action Alternatives has the ability to meet the stated Project Objectives. The level to which these objectives are met varies with the alternatives. Based upon this rating, all the Action Alternatives are capable of meeting the project objectives, but to varying degrees.

6.5.1 No Project Alternative

Ability to Meet Project Objectives

As noted in Table 6-11, the No Project Alternative fails to achieve any of the project objectives, which are directed at improving water supply reliability, recharging groundwater, offsetting surface water demand, minimizing environmental impacts, achieving financial sustainability, and protecting human health; therefore implementation of an alternative water project is required.

Environmental Effects

Implementation of the No Project Alternative would avoid the construction related impacts and operational impacts identified for the Proposed Action. However, implementation of the No

TABLE 6-11
ABILITY OF PROJECT ALTERNATIVES TO MEET PROJECT OBJECTIVES

	Project Alternatives				
Project Objectives	**Basic System**	**Partially Connected System**	**Fully Connected System**	**No Action Alternative**	**No Project Alternative**
Offset urban and agricultural demands on potable supplies.	**Yes.** Basic System would provide 6,655 acre-feet of recycled water per year for beneficial use. Water recycling alleviates demand on potable supplies by providing an alternate water supply.	**Yes.** Partially Connected System would provide 11,250 acre-feet of recycled water per year for beneficial use. Water recycling alleviates demand on potable supplies by providing an alternate water supply.	**Yes.** Fully Connected System provides the maximum amount of recycled water per year for beneficial use. Development of 12,761 AFY of recycled water would alleviate demand on potable supplies by providing an alternate water supply.	**Yes.** Individual projects reasonably anticipated to occur would provide 1,067 acre-feet of recycled water per year that could offset potable demand, but to a substantially lesser degree than any of the Project Alternatives.	**No**. No projects that could offset potable demand would be implemented.
Enhance local and regional ecosystems.	**Yes.** Provides potable demand offset of 6,455 AFY, reduces discharge to receiving waters, and provides 5,825 AFY to Napa Salt Marsh for habitat enhancement.	**Yes.** Provides potable demand offset of 11,060 AFY, reduces discharge to receiving waters, and provides 2,933 AFY to Napa Salt Marsh for habitat enhancement.	**Yes.** Provides potable demand offset of 12,561 AFY, reduces discharge to receiving waters, and provides 3,085 AFY to Napa Salt Marsh for habitat enhancement.	**Partial**. Provides reduce potential demand offset of 1,067 AFY, reduces discharge to receiving waters, and provides 3,257 AFY for habitat restoration assuming Napa Salt Marsh Pipeline is constructed.	**No.** The Proposed Action establishes an allocation of recycled water to be used for habitat restoration; this would not be implemented under the No Action Alternative.
Improve local and regional water supply reliability.	**Yes.** Provides potable demand offset of 6,655 AFY for local surface and groundwater supplies, as well as imported Russian River supplies.	**Yes.** Provides potable demand offset of 11,250 AFY, for local surface and groundwater supplies, as well as imported Russian River supplies.	**Yes.** Provides potable demand offset of 12,761 AFY, for local surface and groundwater supplies, as well as imported Russian River supplies.	**Partial**. Provides reduce potential demand offset of 1,067 AFY, for local surface and groundwater supplies, as well as imported Russian River supplies.	**No**. No infrastructure would be implemented; there would be no improvement in water supply reliability.
Maintain and protect public health and safety.	**Yes.** All treatment distribution and use of recycled water would be in compliance with Title 22.	**Yes.** All treatment distribution and use of recycled water would be in compliance with Title 22.	**Yes.** All treatment distribution and use of recycled water would be in compliance with Title 22.	**Yes.** All treatment distribution and use of recycled water would be in compliance with Title 22.	**No**. No Proposed Action facilities would be implemented.
Promote sustainable practices.	**Yes.** Provides potable demand offset of 6,655 AFY for local surface and groundwater supplies, as well as imported Russian River supplies. Recycles treated effluent that would be discharged to receiving waters. Provides reliable water supply that has low energy and cost requirements compared to development of new water supply sources.	**Yes.** Provides potable demand offset of 11,279 AFY for local surface and groundwater supplies, as well as imported Russian River supplies. Recycles treated effluent that would be discharged to receiving waters. Provides reliable water supply that has low energy and cost requirements compared to development of new water supply sources.	**Yes.** Provides potable demand offset of 12,761 AFY for local surface and groundwater supplies, as well as imported Russian River supplies. Recycles treated effluent that would be discharged to receiving waters. Provides reliable water supply that has low energy and cost requirements compared to development of new water supply sources.	**No.** Provides potable demand offset of 1,067 AFY for local surface and groundwater supplies, as well as imported Russian River supplies. Recycles treated effluent that would be discharged to receiving waters. Provides reliable water supply that has low energy and cost requirements compared to development of new water supply sources.	**No**. The No Action Alternative does not provide sustainable benefits or promote sustainable practices.

TABLE 6-11 (Continued)
BASIC SYSTEM, PARTIALLY CONNECTED SYSTEM, AND FULLY CONNECTED SYSTEM– ABILITY TO MEET PROJECT OBJECTIVES

	Project Alternatives*				
Objectives	**Basic System**	**Partially Connected System**	**Fully Connected System**	**No Action Alternative**	**No Project Alternative**
Give top priority to local needs for recycled water.	**Yes.** Basic System emphasizes delivery of recycled water within the individual service areas. Recycled water will remain be used to offset potable demand within each the four local service areas.	**Yes.** Interconnectivity between service areas will be expanded to improve the ability to provide recycled water to offset potable demand within each the four service areas.	**Yes.** Fully Connected System represents maximum build- out of recycled water facilities and maximum connectivity between service districts. Recycled water service will be extended throughout the service areas.	**Yes.** Projects reasonably likely to occur under the No Action Alternative are strictly individual projects designed to serve local uses. No benefit of cooperative facilities or funding.	**No**. The No Project Alternative does not support local water needs, and does not establish any priority for recycled water delivery.
Implement recycled water facilities in an economically viable manner.	**Yes.** Over the long-term, development of the water recycling facilities proposed under the Basic System is a cost-effective approach to addressing water supply issues. This alternative represents the lowest cost of the three project alternatives.	**Yes.** Over the long-term, development of the water recycling facilities proposed under the Partially Connected System is a cost-effective approach to addressing water supply issues. This Alternative represents the mid-range cost of the three project alternatives. There is potential for cost-sharing among Member Agencies.	**Yes.** Over the long-term, development of the water recycling facilities proposed under the Fully Connected System is a cost-effective approach to addressing water supply issues. This Alternative represents the highest cost of the three project alternatives, but also allows for the most cost sharing between Member Agencies.	**No.** Individual projects that are reasonably anticipated to occur would be forced to rely on local funding and would not receive federal and state funding.	**No**. No Proposed Action facilities would be implemented.

SOURCE: ESA, 2009.

Project Alternative would not provide the benefits of water reclamation which include recycled water use, potable supply savings, reduced reliance on surface and groundwater, reduced groundwater pumping, and habitat enhancement. Under current conditions, the No Project Alternative would not assist in alleviating current water reliability, either locally or regionally, particularly during peak demand periods. The No Project Alternative would not comply with State goals for water recycling, and would not reduce or assist in management of discharges to San Pablo Bay.

Implementation of the No Project Alternative would amount to a continuation of the current conditions, which would not involve construction-related impacts, like those anticipated under the proposed Action Alternatives. All the other project alternatives would cause environmental impacts, which are discussed above and in **Chapter 3**; the impacts would not occur if the No Project Alternative were implemented. However, the No Project Alternative would fail to improve water quality and groundwater overdraft. Therefore, the No Project Alternative is not considered environmentally superior.

6.5.2 No Action Alternative

Ability to Meet Project Objectives

Implementation of the No Action Alternative would partially meet some the project objectives, as it assumes that a smaller subset of recycled water projects, providing approximately 1,067 afy of recycled water, would be implemented (see Table 6-11). The No Action Alternative would not satisfy any of the project objectives to the degree provided by the three Action Alternatives, and it would not meet the objective of providing regional water supply reliability, as no connections between the WWTPs would occur. The No Action Alternative would also have a subset of the impacts identified in Section 3.0, primarily associated with the construction of the facilities that individual member agencies would be able to implement without the benefit of regional coordination or federal funding.

This alternative would not involve the capital costs associated with the Basic, Partially Connected, and Fully Connected Systems; however it would not be the most economically superior alternative. Financial constraints would limit implementation to local projects (e.g., SVCSD would only implement Alignment 1A) and these projects would be ineligible for federal or state funding.

Environmental Effects

Under the No Action Alternative, projects in the Novato SD and SVCSD service areas would likely occur, and would provide approximately 1,067 AFY of recycled water. Adverse environmental impacts associated with the construction of pipelines and pump stations would occur under the No Action Alternative, however to a lesser degree than the Basic, Partially Connected, and Fully Connected Systems. The impacts would likely be shorter in duration and would affect fewer sensitive receptors than those expected under implementation of the Proposed Action. In general, construction-related emissions and impacts to air quality, and increased

ambient noise would result under the other action alternatives except for the No Project Alternatives. Similarly, the No Action Alternative would potentially affect cultural, surface water, or biological resources in the SVCSD, Novato SD, and Napa SD service areas. The four service areas would experience some level of beneficial socioeconomic impact under the three action alternatives, while there would be no impact under the No Action Alternative.

Although the level of environmental impacts related to construction impacts would be of a smaller scale, the No Action Alternative would not result in the level of potable offset for imported surface water, local surface water and groundwater supplies that would be provided under the Action Alternatives. Similarly, it would not substantially alter the amount of treated effluent discharged to tributaries to North San Pablo Bay. Over time, demand pressures on imported surface water, local surface water, and groundwater supplies would be increased, and current water supply and delivery reliability issues would be exacerbated as growth under the approved General Plans within the NBWRP service area occurs. The No Action Alternative would not take advantage of a local, sustainable, and energy efficient water supply.

Because it would not substantially offset potable demand or reduce groundwater pumping, and would not significantly reduce or assist in management of effluent discharge to San Pablo Bay, the No Action Alternative is not considered environmentally superior.

6.5.3 Alternative 1: Basic System

Ability to Meet Project Objectives

The Basic System would be consistent with the Proposed Action's stated objectives, as discussed in Table 6-11. From an economic standpoint, projected capital costs associated with the Basic System are estimated at $209 million[1], with annual operations and maintenance costs estimated a $1.8 million. This represents the lowest capital cost of the three action alternatives.

Environmental Effects

Based on the comparison of environmental effects in Section 6.3, the Basic System is the environmentally superior alternative in almost all resource areas. As noted in Section 6.3, there would be no significant and unavoidable impacts associated with the Basic System. Chapter 3 recommends measures to mitigate any significant impacts to a less-than-significant level. Effects on natural resources would be in proportion to the size and number of facilities proposed. Most of the adverse environmental impacts would be associated with construction activities; the Basic System requires construction of the least amount of infrastructure, therefore would result in less construction-related impacts. Of all of the action alternatives, the Basic System requires the least amount of storage, making use of existing storage or land available at the WWTPs. Implementing the larger recycled water distribution systems would require additional storage. However, the facilities proposed under the Basic System would have the lowest capacity to treat and distribute

[1] Costs are shown in 2008 dollars. All costs were escalated to April 2008 dollars using the Building Cost Index. (CDM, 2008)

recycled water, and would therefore reduce the least amount of discharge to the tributaries of North San Pablo Bay.

6.5.4 Alternative 2: Partially Connected System

Based on the comparison of environmental effects in Section 6.3, the Partially Connected System is not the environmentally superior alternative in any resource area. In most cases, the impacts for the Partially Connected System would be greater than the impacts under the Basic System, and would be similar to impacts under the Fully Connected System. Although most significant impacts would be mitigated to a less-than-significant level, the Partially Connected System would require more infrastructure than the Basic System, and therefore result in more construction-related impacts.

The Partially Connected System would be consistent with the Proposed Action's stated objectives. It would expand regional interconnectivity, provide a greater amount of recycled water to offset potable demand, and provide greater amount of water for habitat restoration. From an economic perspective, the Partially Connected Alternative is moderately economically viable, as it represents the mid-range cost of the three action alternatives. Projected capital costs associated with the Partially Connected System are estimated at $377.5 million, with annual operations and maintenance costs estimated at $2.8 million.

6.5.5 Alternative 3: Fully Connected System

Based on the comparison of environmental effects in Section 6.3, the Fully Connected System is the environmentally superior alternative in several impact areas. The Fully Connected System would reduce the maximum amount of discharge to the Bay, offset the maximum amount of groundwater pumping, and provide the maximum amount of recycled water use. Although, most of these benefits are related to water supply and water quality, the Fully Connected System could result in adverse impacts to existing drainage patterns and stormwater flow, as well as temporary construction-related impacts to water quality.

The Fully Connected System would be consistent with the project objectives. By providing maximum recycled water, the Fully Connected Alternative would be capable of significantly offsetting potable demand and increasing water supply reliability, expanding regional interconnectivity, and supporting habitat restoration. From an economic perspective, the Fully Connected System would be beneficial to the regional economy, as discussed above. However, projected capital costs associated with the Fully Connected System are estimated at $414 million, with annual operations and maintenance costs estimated at $3.1 million. This represents the highest cost alternative, which is not the most economically viable alternative.

The tradeoffs associated with implementing one alternative over another are summarized below in **Table 6-12**.

TABLE 6-12
TRADEOFFS ASSOCIATED WITH EACH ALTERNATIVE

Alternative	Benefits	Disadvantages
No Project Alternative	No cost to individual Member Agencies No adverse environmental impacts as a result of project construction and operation	No additional recycled water for potable offset or habitat enhancement No reduction of discharge to San Pablo Bay No regional interconnectivity or improvement of regional water supply reliability.
No Action Alternative	Lower costs than Proposed Alternatives	Minimum amount of recycled water for beneficial reuse and habitat enchantment Projects would be implemented without federal funding No regional interconnectivity Minimal improvement of local water supply reliability
Basic System	Lowest cost of Action Alternatives Lowest adverse environmental impacts	Minimum amount of recycled water for potable offset.
Partially Connected System	Medium costs, recycled water reuse, environmental impacts	Greater costs than Basic System Greater impacts from construction
Fully Connected System	Maximum amount of wastewater discharge reduction Maximum amount of recycled water for beneficial reuse and habitat enhancement	Maximum costs; Maximum impacts from construction

SOURCE: ESA, 2008.

6.6 Alternatives to the Project

A number of potential alternatives to the project were considered by NBWRA, however were not carried forward and not evaluated at level equal to the Action Alternatives in this EIR/EIS due to factors such as lack of feasibility; lack of environmental advantages; and/or inability to meet the basic objectives of the project.

6.6.1 Importation of Water

Under this alternative, potable or treated recycled water would be imported to Sonoma, Napa, or Marin counties from another community not participating in the NBWRA, such as Windsor, Yountville, Petaluma, Rohnert Park, Vallejo or Santa Rosa. For recycled water importation, a pipeline would be constructed from a sanitation district of another community to the users in Sonoma, Napa, or Marin, with booster pump stations to maintain sufficient water pressure.

Even if water were imported from the nearest community, this alternative would require construction of a large conveyance pipeline network to serve the LGVSD, Novato SD, SVCSD,

and Napa SD service areas. This alternative would require installation of a minimum of 50 miles of pipeline through a combination of roadways and undeveloped areas (ESA, 2006). This alternative was analyzed for the three criteria that were used to assess the alternatives of the project above.

For potable water importation into the region, expansion of the Department of Water Resources (DWR) North Bay Aqueduct (NBA), the capacity of which is fully allocated, would be necessary. This would also entail identification and acquisition of additional State Water Project (SWP) entitlements to serve additional supplies to the MST area, or other NBWRA service areas. For cost comparison, the Phase 3 Feasibility Study (CDM, 2008) included expansion of the NBA to provide 1,937 AFY of imported water to Napa MST area. Facility expansion would require a series of new pipeline alignments and booster pump station from Barker Slough. The cost of this type of system is estimated at $40 million, plus an additional $8 million in legal fee and bonding fees. Additional local cost beyond NBA expansion costs would include a new potable distribution system to the MST Area, and long-term water supply costs. Importation of SWP supplies to the MST area are estimated at approximately $96 million (CDM, 2008).

Ability to Meet Project Objectives

Table 6-13 summarizes the ability of Imported Water Alternatives, both recycled and potable supplies, to meet the stated project objectives. Importation of recycled water into the NBWRP service area would have the potential to meet some of the objectives, in that it would provide a recycled water supply to offset the use of potable supplies for irrigation. However, it is not anticipated that these alternatives would provide a more sustainable or cost effective water supply, given the pipeline distances involved.

Fundamentally, these alternatives would not offset potable supplies currently used for irrigation. Rather, they would continue to use imported potable supplies to meet irrigation demands. These alternatives would not reduce the amount of treated effluent discharge to tributaries of North San Pablo Bay, and would not provide a reliable habitat enhancement water supply for the Napa Salt Ponds. Additional importation of potable supplies would not improve the reliability to local water supplies, as SWP supplies are subject to drought year reliability.

Significant Effects

Importation of recycled water from an outside community would incur similar impacts as the alternatives of the project discussed above. Impacts associated with pipeline construction would include short-term impacts to aesthetics, air quality, biological resources, hazards and hazardous materials, water quality, land use, noise, public services and utilities, and traffic. Pipeline construction could also result in temporary and permanent disturbance to jurisdictional wetlands and other waters, riparian habitat, special-status plant and animal species, and known or unknown cultural resources.

This alternative would cause lesser impacts to surface hydrology and reduce groundwater pumping; however, these effects would occur outside the action area and would not address

TABLE 6-13
ABILITY OF ACTION ALTERNATIVES TO MEET PROJECT OBJECTIVES

	Alternatives of the Project			Alternatives to the Project		
				Importation of Water		Desalination
Objectives	**Basic System**	**Partially Connected System**	**Fully Connected System**	**Importation of Recycled Water**	**Importation of Potable Water (SWP via the NBA)**	**MMWD or SVCSD Plant**
Offset urban and agricultural demands on potable supplies.	**Yes**	**Yes**	**Yes**	**Yes.** If new infrastructure is established to convey recycled water from the outside community's treatment facility, importation and use of recycled water would offset potable water use in the action area.	**No**. If potable water (i.e. SWP water) is imported from an outside community, potable demand and impacts to surface water would be shifted to a different location, but would fail to offset potable demand.	**Yes**. Desalination of sea water would offset potable demand by processing seawater.
Enhance local and regional ecosystems.	**Yes**	**Yes**	**Yes**	**Yes**. Although this alternative does not directly incorporate habitat restoration, it could result in reduced groundwater pumping, improve the groundwater overdraft situation, and contribute to improved stream flow hydrology and riparian habitat. However, this alternative would not reduce wastewater discharge produced in the action area.	**Yes**. Although this alternative does not directly incorporate habitat restoration, it could result in reduced groundwater pumping, improve the groundwater overdraft situation, and contribute to improved stream flow hydrology and riparian habitat. However, this alternative would not reduce discharge produced in the action area.	**No.** Brine effluent/ discharge could affect aquatic ecosystems. This alternative does not allocate water for habitat restoration.
Improve local and regional water supply reliability.	**Yes**	**Yes**	**Yes**	**No.** Importation of recycled water would connect an outside community to part of the action area, but would not effectively improve interconnectivity within the action area. It could improve water supply reliability within portions of the action area, but the effect on outside water supply reliability is unclear.	**No**. Increased reliance on potable water would not improve overall water supply reliability.	**Yes**. This alternative emphasizes local water supply. Seawater is an accessible and available water supply source.
Maintain and protect public health and safety.	**Yes**	**Yes**	**Yes**	**Yes.** Elements of the alternative would not compromise human health.	**Yes**. Elements of this alternative would not compromise public health.	**Yes**. Elements of this alternative would not compromise public health.
Promote sustainable practices.	**Yes**	**Yes**	**Yes**	**No.** Although this alternative promotes reuse of water, it would potentially incur greater construction-related impacts.	**No**. Importation of potable water from an outside community would not holistically address water supply issues. It would require extensive construction, incur construction-related impacts, and have high capital costs.	**Yes**. Desalination is would use seawater as source, and the impacts would most likely be mitigated to a less-than-significant level. However, it may not improve long-term sustainability of the regional water system or enhance sensitive ecosystems, from a water supply, groundwater management, or habitat restoration perspective.

TABLE 6-13 (Continued)
SUMMARY OF THE BASIC, PARTIALLY CONNECTED, AND FULLY CONNECTED SYSTEMS COMPARED TO IMPORTATION OF WATER AND DESALINATION– ABILITY TO MEET PROJECT OBJECTIVES

	Alternatives of the Project			Alternatives to the Project		
				Importation of Water		Desalination
Objectives	**Basic System**	**Partially Connected System**	**Fully Connected System**	**Importation of Recycled Water**	**Importation of Potable Water (SWP via the NBA)**	**MMWD or SVCSD Plant**
Give top priority to local needs for recycled water.	**Yes**	**Yes**	**Yes**	**No.** Importation of recycled water from an outside community to the study area would not emphasize local water delivery.	**No**. Importation of potable water would exacerbate potable demand in the exporting community.	**Yes**. A desalination facility would provide water to the local water districts.
Implement recycled water facilities in an economically viable manner.	**Yes**	**Yes**	**Yes**	**Yes/ No.** This would be a cost-effective alternative. However, the potential for cost-sharing among agencies is reduced.	**No**. The capital costs to construct a distribution system would be equivalent to the cost to import recycled water. But, importation of potable water would be delivered via the NBA, the capacity of which is fully allocated; therefore importation of potable water would require expansion of the NBA, which makes costs prohibitive. Furthermore, the potential for cost-sharing among agencies would be reduced.	**Yes/ No**. The MMWD Plant, for example, would be cost-effective. However, the potential for cost-sharing among agencies is prohibited.

groundwater pumping issues within the action area in Sonoma, Napa, or Marin Counties. Similarly, importing recycled water would not reduce wastewater discharge within the action area, since recycled water sources would lie outside the action area.

Importation of potable water would require additional infrastructure, which would result in construction-related environmental impacts and a potential increase in potable demand outside the action area. Importing potable water would not reduce wastewater discharge within the action area.

Economic Feasibility

Under this alternative, the Member Agencies would face the institutional constraints of developing an agreement to obtain either recycled water or potable water supplies, prepare the cost estimates associated with purchase of the water, the costs of constructing new distribution infrastructure. Importing water from outside communities to individual service areas could require pipelines in excess of what would be required to develop connections between the four Member Agencies. For example, if water were imported to SVCSD from a community located at greater distances from Napa, such as Santa Rosa or Windsor, approximately 55 to 65 miles of pipeline would need to be constructed. It would require approximately 20 to 30 miles of pipeline to connect SVCSD to the LGVSD WWTP, Novato SD WWTP, or the Napa SD WWTP. For cost comparison, the Phase 3 Feasibility Study (CDM, 2008) included expansion of the NBA to provide 1,937 AFY of imported water to Napa MST area. **Table 6-14** provides a summary comparison of the NBWRA Phase I versus alternatives reviewed, but not considered further. Facility expansion would require a series of new pipeline alignments and booster pump station from Barker Slough. The cost of this type of system is estimated at $40 million, plus an additional $8 million in legal fee and bonding fees. Additional local cost beyond NBA expansion costs would include a new potable distribution system to the MST Area, and long-term water supply costs. Importation of SWP supplies to the MST area are estimated at approximately $96 million (CDM, 2008). Expansion of the NBA for this cost would only meet the needs of one of the NBWRP service areas.

TABLE 6-14
COMPARISON OF CAPITAL COSTS AND COST-EFFECTIVENESS FOR ALTERNATIVES TO THE PROPOSED ACTION

	NBWRA Alternative 1 Phase 1	Water Project (Sonoma and Marin Counties Portion of Action Area)	Import Water to MST Area (Napa County portion of Action Area)	Desalination (MMWD)
Annual Capital Costs ($)	4,702,725	6,781,232	3,719,428	121,100,000
Annual O&M Costs ($)	1,381,000	N/A	N/A	7,100,000*
Total Annual Costs ($)	6,083,725	6,781,232	3,719,428	
Supply (AF)	4,654	3,613	1,937	5,300
Dollar per acre-foot	1,307	1,877	1,920	24,169.80

SOURCE: CDM, 2008; ESA, 2009

6.6.2 Desalination

Desalination of saline water from San Pablo Bay would provide a reliable supply of water for irrigation. Currently, reverse osmosis (RO) treatment is the most cost-effective and feasible treatment option for desalination. The desalination plant could be sized and operated to provide a continuous source of supply. Due to the higher salinity of the source water and depending upon the efficacy of the RO process, the high salinity (~35,000 milligrams per liter of total dissolved solids), a flow of 5,500 AF of source water would produce approximately 2,750 AF of desalinated water.[2] As such, higher feed pressure and need to increase the treatment capacity would result in a high electric power requirement.

Desalination has been previously proposed for both Marin and Sonoma counties. The Marin Municipal Water District has developed a desalination project that would serve the City of San Rafael and Marin County. Construction of a 5-mgd desalination plant is proposed, and capacity could be expanded in 5 mgd increments, up to a maximum capacity of 15 mgd. The source water from San Rafael Bay would undergo several treatment processes at the facility including solid removal, reverse osmosis, and disinfection and addition of materials for taste. The potable product water generated at the facility would be 50 percent of the source water flowing into the facility. The brine produced in the reverse osmosis process would be blended with treated wastewater prior to discharge into the Bay. The solids would be disposed in the Redwood Landfill.

In Sonoma County, the desalination alternative would provide desalination of seawater to provide water supply for irrigation. The desalinated water would require blending with either recycled water or groundwater at the SVCSD WWTP prior to irrigation use. One option would be to size the plant to supply 2,750 AFY to the Sonoma Valley during irrigation months. Another option is a regional desalination plant that would provide irrigation as well as augmenting drinking water supplies for both the City of Sonoma and unincorporated areas of Sonoma County. The project would consist of an RO plant, an onshore pumping station and chemical treatment unit, a seawater intake structure, an onshore/offshore seawater supply pipeline between the onshore pump station and offshore seawater intake, pipelines to transport seawater and chemicals between the desalination plant and onshore pump station/chemical treatment area, and a pipeline to transport concentrated seawater brine from the desalination plant site to an ocean outfall. A desalination project could also require construction of a power substation (ESA, 2006).

Ability to Meet Project Objectives

Table 6-13 presents a summary of project alternative's consistency with stated project objectives and an analysis of alternatives of the project consistency with the objectives to support the decision to reject these alternatives. As noted above, some alternatives to the project would, in fact, be cost-effective; however, these alternatives do not achieve a majority of the project objectives. The desalination alternative (MMWD proposed plant) is more cost-effective than the three action alternatives, but does not satisfy stated project objectives (Table 6-11).

[2] Assuming 50 percent efficacy, the RO process would generate 50 percent desalinated water of the source water.

Environmental Effects

The environmental impacts associated with the desalination alternative would occur during construction of the project facilities similar to other alternatives. Construction activities would include construction of the RO plant, pipeline, and rebuilding the pier. Environmental impacts to aesthetics, ambient noise, and water quality are typically associated with desalination facilities.

Long-term effects would include water quality impacts from the discharge of the brine generated by the desalination process. The discharge would be dispersed by currents in San Pablo Bay, affecting temperature, nutrients, and turbidity and, therefore, the abundance and diversity of marine organisms. Areas of potential concern in relation to oceanography and marine water quality include temperature, dissolved oxygen, or salinity; possible localized changes in currents or in turbidity, due to the presence of intake pipes on the ocean bottom or due to the pumping/discharge of effluents from the desalination plant; and possible changes in dispersion of sewage plume effluent due to added discharge of brine effluent from the desalination plant. As such, a desalination project would require a baseline study to establish offshore conditions prior to desalination plant startup; and perform quarterly marine water quality/biological monitoring in accordance with the San Francisco Bay Regional Water Quality Control Board requirements during operational phase (ESA, 2006). Implementation of a desalination plant would also require construction of new facilities, which would incur construction-related impacts similar to those anticipated under the Proposed Action; therefore the desalination alternative would have a similar level of temporary environmental impact when compared to the three action alternatives.

Economic Feasibility

The capital costs and operations and maintenance costs could be prohibitive: the estimated capital cost of the MMWD plant is estimated at $121.1 million, with annual operations and maintenance costs as high as $7.1 million (Table 6-14). When compared to the proposed Basic System, a desalination plant would be more cost-effective[3], but the project may be ineligible for federal funding. Further, there are high energy costs associated with this alternative in addition to the costs for land acquisition, construction of seawater intake and potentially a brine water discharge line and brine water outfall. In addition, considering the extremely high cost for desalination, coupled with its greater dependency on large quantities of power, this alternative was not carried forward for further analysis.

6.6.3 Variations of Proposed Action Alternatives

During the scoping process for the NBWRP, members of the public requested that additional alternatives be developed and reviewed that addressed two central themes: 1) Prioritization of recycled water to offset urban demands that are served by Russian River supplies, and; 2) prioritization of recycled water to meet local demands first, thereby minimizing the carbon footprint of the selected alternative.

[3] Cost-effectiveness is based on the cost per AFY, calculated using estimated total AFY and costs.

The NBWRA recognizes that an infinite number of facility configurations are available within the region, and has formulated this analysis to most cost effectively serve identified users within the region. In effort to address this request, a "landscape only" alternative was reviewed. This alternative would include the following elements:

- Complete buildout of the NMWD Urban Recycled Water Plan, including all of the facilities envisioned under the Fully Connected Alternative, in Phase 1;
- Implementation of all LGVSD Projects in Phase 1;
- Reduction of Napa SD supplies for agricultural irrigation; and
- Reduction of supplies to SCVSD for agricultural irrigation.

A landscape-only alternative would provide approximately 3,920 afy of recycled water, and would require construction of 73 miles of pipeline, 4.0 mgd of tertiary treatment capacity, 6 acre-feet of storage, and 1,614 horsepower of pumping. The amount of pipeline is greater than Phase 1 by approximately 14 miles, due to the greater geographic distribution of end users.

Ability to Meet Project Objectives

A landscape-only alternative would not meet the stated project objective to offset urban and agricultural demands on potable supplies, as all recycled water would be prioritized to urban uses, and no recycled water would be made available to meet agricultural demands. Offset of groundwater pumped for agricultural uses would not occur, which is only of the clearly identified local needs for recycled water. A landscape-only alternative would focus funding to recycled water facilities in Marin, creating an equity issue among the NBWRA Member Agencies, and reducing the regional nature of the NBWRP.

Environmental Effects

The environmental effects of a landscape-only alternative would generally be similar to those associated with the Action Alternatives. Implementation of Phase 1 targeting this end user group would increase the miles of pipeline construction by approximately 14 miles, which would increase the scale and geographic distribution of impacts identified for Phase 1. This alternative would not avoid any impacts associated with the proposed Action Alternatives.

Economic Feasibility

Projected capital costs associated with a landscape-only variation are estimated at $108.4 million, making it comparable to Phase 1 of the Basic System. However, at the local level, this would shift a disproportionate application of funds to the NMWD/Novato SD and LGVSD projects, essentially building out 100% of those agency's recycled water programs as part of Phase 1. This would be an equity issue for NBWRP, but would also place a substantial financial burden on NMWD, Novato SD, and LGVSD to provide matching local funds in order to build out their local recycled water programs.

Because this alternative would not meet one of the stated project objectives, and would not be economically feasible due to the over-prioritization projects within certain Member Agencies, consideration of this alternative was not carried forward for further analysis.

6.7 Environmentally Superior Project Alternative

The lead agency is not required by CEQA or NEPA to adopt an environmentally superior alternative that will not feasibly attain project objectives or reduce environmental effects. In the process of selecting the environmentally superior alternative, NBWRA has evaluated several factors, including environmental effects, engineering and operational criteria, system reliability and flexibility, cost, and efficient coordination with other water recycling efforts, in determining which alternative is the best project to approve and implement.

CEQA and NEPA require that a lead agency demonstrate why a project or an alternative is selected. This is provided in the findings document that is adopted by the Board of Supervisors. The CEQA Guidelines indicate that when the No Project Alternative is the environmentally superior alternative, the EIR should identify an environmentally superior alternative from among the Proposed Action and other “action” alternatives. In this case, based on the discussion above the No Project Alternative is not the environmentally superior alternative. The No Action Alternative would cause the least amount of environmental impact, incrementally, due to its reduced facility requirements. The Basic, Partially Connected, and Fully Connected Systems may offer some advantage by increasing connectivity between the service areas.

The Basic System has been identified as the most environmentally, equitably, and financially sustainable alternative that will effectively fulfill the project objectives. The Basic System would provide adequate conveyance, pumping, and storage capacity that would result in 6,655 AFY of recycled water, therefore offsetting a substantial amount of potable demand and reducing wastewater discharge to San Pablo Bay. The Basic System would achieve the project objectives with least environmental impacts and costs, although would not provide the benefits from increased connectivity that would occur under the Partially and Fully Connected Systems. The Basic System would have the capacity to provide recycled water to offset potable demand and improve water supply reliability, although to a lesser degree than the Partially Connected and Fully Connected Alternatives. The Basic System appears to best meet the stated objectives of the project, for the following reasons:

1) The Basic System provides offset for urban and agricultural demands on potable supplies, although not to the degree provided by the Partially Connected and Fully Connected Systems.

2) The Basic System includes the greatest provision of recycled water to Napa Salt Ponds, as well as secondary benefit to local surface and groundwater supplies;

3) The Basic System would improve local and regional water supply reliability, although not to the degree provided by the Partially Connected and Fully Connected Alternatives.

4) The Basic System would maintain and protect public health and safety, as would all of the alternatives. The No Project Alternative was actually rated highest, as it would not construct or operate any proposed facilities.

5) The Basic System would promote sustainable practices by providing recycled water, although not to the degree provided by the Partially Connected and Fully Connected Alternatives.

6) The Basic System is the most local of the alternatives, as no connections between WWTPs would be provided, with the exception of provision of recycled water to the Napa Salt Ponds. Therefore, the ability to "export" water from one service area to another is limited.

7) The Basic System is the least expensive of the alternatives considered, with the exception of the No Action and No Project Alternatives.

The Basic System would provide some connectivity between service areas with a major emphasis on local water use. Water reuse would provide environmental benefits by offsetting surface and groundwater use, reducing the need to develop additional water supplies, and reducing discharge to the Bay. Although an incrementally smaller amount of recycled water would be available, it would represent an economically feasible alternative. Implementing the Basic System would cost 80 percent less than the Partially Connected System, and 200 percent less than the Fully Connected System (CDM, 2008). Since the Basic System would represent the lower cost alternative and would be implemented through federal and state funding options, it is the most cost-effective for the Member Agencies. The Basic System would require the least amount of new storage and relies on the use of existing facilities by rehabilitating reservoirs and using ponds at the WWTPs.

Compared to the Basic System, the Partially and Fully Connected Systems would increase regional connectivity and provide incrementally more recycled water treatment and distribution facilities, albeit with greater costs for greater costs for the Member Agencies, construction impacts, and greater potential for conflict with natural resources. Therefore, the Partially and Fully Connected Systems are not the most environmentally superior alternatives (see Table 6-13).

In general, all the three proposed alternatives would meet the stated project objectives and comply with applicable regulations and policies. In relation to the stated project objectives and environmental impacts, the Fully Connected System would involve the greatest capital costs and maximum adverse environmental impacts due to the proportion of facilities that would be required. The benefit of reducing the amount of wastewater discharged to the Bay is counterbalanced by the detriment cause during construction and facility operation; therefore, the Fully Connected System is not considered environmentally superior.

In general, the Partially Connected System represents the middle ground between the Basic System and the Fully Connected System, balancing the potential environmental impacts, implementation costs, and risk issues associated with the alternatives. In comparison, the Partially Connected System would cause greater environmental impacts than the Basic System, and would cause impacts similar to the Fully Connected System. The Partially Connected System could fulfill the objectives to improve water supply reliability and offset potable demand to a higher

degree than the Basic System, however the Partially Connected System would not necessarily be the most financially or environmentally sustainable option, due to increased infrastructure requirements.

Based on the criteria set previously in the chapter for alternatives analysis, with respect to their ability to meet the stated project objectives, their potential environmental impacts, and the cost of implementation, it was determined that the Basic System is identified as the environmentally superior alternative. Of the action alternatives, the Basic System would achieve the project objectives, result in lesser environmental impacts, and would incur lower costs. The Basic System would thus achieve all of the project objectives while simultaneously providing a means for Member Agencies to achieve water management goals, meet future water demand, augment surface water use, and sustain environmental and water quality.

References – Alternatives Analysis

Camp Dresser McKee, Inc. (CDM), *Phase 3 Engineering and Economic/ Financial Analysis Report*, June 2008.

Camp Dresser & McKee, Inc. (CDM), Data related to Recycled Water Use and Acreage Served and Wastewater Discharge under the Project Alternatives, 2009.

Environmental Science Associates, *Sonoma Valley Recycled Water Project, Environmental Impact Report*, 2006.

CHAPTER 7
Climate Change

7.1 Introduction

Climate change is a shift in the average weather patterns observed on earth, which can be measured by such variables as temperature, wind patterns, storms, and precipitation (SCWA, 2008). This chapter presents a discussion of climate change and its potential consequences and how it would affect or be affected by the proposed project.

The earth's atmosphere includes gases such as carbon dioxide and methane that trap solar radiation entering the earth's atmosphere. As a result, the heat and the radiation that otherwise would have escaped back into space is retained, resulting in warming of the earth's atmosphere. This phenomenon is known as the greenhouse effect (refer to **Section 3.8, Air Quality,** for details). The gases that trap the heat and radiation are called greenhouse gases (GHGs).

Scientific research to date indicates that observed climate change is most likely a result of increased emission of GHGs associated with human activity (Intergovernmental Panel in Climate Change, 2007a; 2007b). Among the prominent GHGs contributing to the greenhouse effect are water vapor, methane, ozone, nitrous oxide, carbon dioxide (CO_2), and chlorofluorocarbons. GHG emissions in excess of natural ambient concentrations are responsible for enhancing the greenhouse effect. Emissions of the GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential and agricultural sectors (California Energy Commission, 2006). In California, the transportation sector is the largest emitter of GHGs (accounting for 40.7 percent of the total GHG emissions in the state in 2004), followed by electricity generation (California Energy Commission, 2006). If California were a country, it would rank between the 12th and 16th largest emitters of CO_2 in the world. California produced 492 million gross metric tons of CO_2 equivalents[1] in 2004 (California Energy Commission, 2006).

One of the actions taken to address climate change and GHG emissions in California is the 2005 Executive Order S-3-05. This order mandates GHG emission reduction targets as follows:

- by 2010, GHG emissions reductions to 2000 levels;

[1] Carbon dioxide equivalent (CO_2E) is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, methane is a much more potent GHG than CO_2.

- by 2020, GHG emissions reductions to 1990 levels; and
- by 2050, GHG emissions reductions to 80 percent below 1990 levels.

In 2006, the California Global Warming Solutions Act of 2006 was passed (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.), which requires the California Air Resources Board to design and implement emission limits, regulations, and other feasible and cost-effective measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing an approximate 25 percent reduction in emissions).

Two general areas relevant to the discussion of potential environmental effects related to climate change are:

- Would the proposed project contribute to the adverse effects of climate change (e.g., GHG emissions)?
- Would the proposed project be adversely affected by the environmental changes projected to result from climate change (e.g., sea level rise)? What would the role of the project be as it relates to the effect of climate change on water resources?

The first question, regarding the project's contribution to climate change, relates to GHG emissions and is analyzed in **Section 3.8, Air Quality,** of this Environmental Impact Report / Environmental Impact Statement (EIR/EIS). As discussed in the section, the proposed project would result in less-than-significant long term GHG emissions. Refer to Section 3.8, Air Quality, for details.

The second question, whether the proposed project would be affected adversely by the projected environmental changes associated with climate change, centers on issues such as water resources and sea level rise, which is discussed in this chapter. Sea level rise is also discussed in Section 3.2, Surface Hydrology.

7.2 Potential Changes and Effects from Climate Change

The many effects of GHG emissions are still being researched and are not fully known, but are expected to include increased temperatures, which could reduce snowpack, which in most areas is a primary source of fresh water[2]. Climate change is expected to exacerbate air quality problems and adversely affect human health by increasing heat stress and related deaths; increase the incidence of infectious diseases, asthma and respiratory health problems; cause sea level rise threatening urban and natural coastal areas; cause variations in natural plant communities affecting wildlife; and cause variations in crop quality and yields (SCWA, 2008). Climate change is also expected to result in more extreme weather events and heavier precipitation events that can lead to flooding as well as more extended drought periods.

[2] Snowpack provides limited water to NBWRP services areas, and no water to MST or Carneros areas in Napa. While the City of Napa does receive water from the State Water Project, the City does not serve unincorporated areas of Napa County.

7.2.1 Water Resources

Water supply can be described in terms of indices such as precipitation, snow pack, and runoff. Analysis of data and weather records are studied to determine the trend and the variability in the indices (e.g., precipitation and runoff), which affect water availability.

Most precipitation events in California occur between October and April more specifically, in terms of amount of precipitation occurring from November through March. An analysis by the United States National Weather Service (USNWS) using data from 1931 through 2005 indicates a long-term trend of increasing annual precipitation (i.e., increase of up to 1.5 inches per decade) in California, especially in northern California (USNWS, 2008). A second investigation completed by the California Department of Water Resources (DWR) indicated a statistically significant increasing trend in total precipitation in northern and central California since the late 1960s (DWR, 2006). An investigation by Bardini and others (2001) showed a trend of potentially decreasing annual precipitation in California; however, this result is probably related to the specific subset of data that the Bardini study relied upon, wherein extremes at the beginning or end of time series data can substantially impact the identified trend (DWR, 2006). Rainfall data from November through March of 1930 through 1997 indicated significant increases in California rainfall (Mote, 2005).

There is also evidence that the amount of precipitation that occurs on an annual basis is becoming more variable (i.e., periods of both high and low rainfall are becoming more common). Specifically, a study performed by DWR (2006) indicates that present day variability in annual precipitation is about 75 percent greater than that of the early 20th century.

As stated above, precipitation across California appears to have increased over the past century, and individual water years have become more variable in terms of the amount of precipitation that occurs. It follows, therefore, that similar trends would be observed for runoff. Annual runoff (i.e., runoff measured from October 1st through September 30th) and peak runoff (i.e., typically measured for individual storm events) include flows derived from precipitation events, snowmelt, and river base flow. However, most of the water mass present during a peak runoff event is typically derived from concurrent precipitation and/or snowmelt.

A DWR study by DWR (2006) compares pre- and post-1955 annual average water year unimpaired runoff[3] for 24 watersheds across northern, central, and southern California. The study indicates an annual increase in runoff of up to 27 percent for 21 of the 24 watersheds, with an overall average increase of 9 percent. However for summer months the runoff from April to July is decreasing. In May 2008, seasonal runoff of Napa River in the San Francisco Bay Region totaled 45,000 acre-feet which is 60 percent of average runoff for this period. In 2007, the runoff for the same period was 30 percent of average (DWR, 2006).

[3] Unimpaired runoff refers to the runoff that occurs within a river above major regulating impoundments such as major dams.

7.2.2 Flooding and Sea Level Rise

As discussed above, it is anticipated that climate change will have a substantial effect on the timing and magnitude of snowfall, rainfall, and snowmelt events in California. Large annual variations in winter rainfall and runoff, which are normal in California, create uncertainty surrounding potential increase in flooding as a result of climate change.

According to a report by DWR (2006), the mean sea level at the Golden Gate Bridge has risen by at least 8 inches since 1900. This is in line with a report by the IPCC (2007a), which indicates average increases of 3.9 to 7.9 inches globally during the last century. The observed sea level rise likely results from a combination of factors, including melting of polar and terrestrial ice and snow, and thermal expansion of ocean water as the earth's temperature increased (IPCC, 2007b).

Efforts have been made to predict the amount of sea level rise that would likely occur in the future under various worldwide GHG emissions scenarios. Results from a recent IPCC report indicated that global sea level could increase by an estimated 7 to 23 inches by 2099, or about 0.6 to 3.8 inches per 10 years (IPCC, 2007b). There is some disagreement and uncertainty in regards to sea level rise projections (Munk, 2002); however, the IPCC (2007b) study represents what is probably the most highly regarded and accepted study.

7.2.3 Climate Change and the Proposed Project

Water Resources

Current climate change research generally indicates that the most probable water resources impacts associated with climate change would be related to increases in peak winter flows and decreases in spring and early summer runoff. These factors would result in a reduction of water available for capture within the state and federal water projects, as well as other local water projects and diversions. Without substantial changes in water management, it is therefore likely that climate change could result in reduced deliveries to water contractors in the project area.

As discussed in **Section 3.3, Groundwater Resources**, saline intrusion continues to be an issue in areas bordering San Pablo Bay. Increased groundwater pumping, low rainfall, saline intrusion from San Pablo Bay, low soil permeability, and geothermal upwelling are believed to contribute to declining groundwater levels and poor groundwater quality in portions of the project area. Although the clay content holds water in the soil, it can restrict water percolation to the water table and can, therefore, reduce the volume of groundwater available for irrigation in certain areas. Groundwater pumping in Sonoma and Napa Counties has increased in the past 20 years because of population growth and an increase in agriculture. Several pumping depressions are now evident within Sonoma and Napa Counties, and groundwater levels have generally declined in these areas (Farrar et al 2006; Farrar and Metzger, 2003). The MST groundwater basin has been designated as a groundwater deficient basin by Napa County because of declining groundwater levels.

Predictive climate models have been improved in recent years to provide reasonable stimulations of future climate conditions for snowpack watersheds as those of the Sierra Nevada mountain range. However, the models would not be likely able to provide reasonably accurate results for the project area (e.g., the Russian River watershed) due to highly erratic and variable nature of storm formation in the Pacific region. Preliminary climate modeling results for the Pacific coastal regions have predicted that it could be wetter, drier, or the same. Consequently, the numeric climate models are not a useful water supply planning tool for this region, and the best information SCWA has to predict climate in the region continues to be 95 years of hydrologic information (1909 – 2004 hydrologic period) used as a foundation for SCWA's Russian River System Model. Although SCWA will continue to monitor and evaluate developing modeling capabilities, it is currently not possible to predict with a reasonable degree of accuracy the water resource impacts of climate change on the Russian River watershed (SCWA, 2008), which likely is applicable to the project area.

As described in Chapter 1, Introduction, the NBWRA Member Agencies have initiated programs to promote sustainability and implement energy efficiency and water conservation programs including local recycled water projects as means of adaptive strategies to the effects of climate change. As part of the proposed project, the NBWRA would expand the recycled water use in the North San Pablo Bay region. As discussed in **Section 3.11, Public Services and Utilities**, the proposed project would treat and reuse the wastewater that is otherwise discharged to the San Pablo Bay. The project would therefore offset the potable water supply, making an equivalent amount of potable water available for other uses. Given the increased variability in the precipitation and thus, the water supplies, the proposed project would have a beneficial effect on the water supplies in the region. The proposed project would provide several opportunities for management flexibility and implementation of adaptive management strategies to improve water supply reliability.

Flooding

As discussed in **Section 3.2, Surface Hydrology,** the watersheds within the project area have experienced multiple severe flood events in the last 100 years. The Novato Creek Watershed has experienced five serious floods since 1955, the Petaluma River has had four major floods since 1982, and the Napa River has experienced serious floods 21 times since 1862. Historical trends for annual runoff and peak flows over the last hundred years indicated a decrease in runoff from April to July and an increase in and more variable three-day peak flows (DWR, 2006). Independent climate modeling efforts (Dettinger et. al., 2004 and Miller et. al., 2003), predict that more variable river flows and more frequent flooding events will continue into the future, as a result of climate change.

As discussed further in **Section 3.2, Surface Hydrology,** sea-level rise could cause impacts in certain areas of the proposed project. The Department of Geosciences Environmental Studies Laboratory Climate Change and Sea Level Rise data identifies areas in Marin, Sonoma, and Napa Counties that would likely be susceptible to impacts based on elevation and proximity to San Pablo Bay. Susceptible areas that have been identified include the following portions of the project area:

- the eastern portion of Marin County, north of the community of Santa Venetia, south of State Route 37, east of U.S. 101 and the railroad;
- areas along the Petaluma River, north of the city of Novato;
- areas along the southern portion of Sonoma Creek in Sonoma County; and
- the majority of Napa County, predominantly south of the Northwestern Pacific Railroad, west of the airport, and along the Napa River corridor.

As discussed in **Section 3.2, Surface Hydrology** of the EIR/EIS, some of the project facilities in the above areas would be potentially impacted from sea level rise. To alleviate the significant impact, the project design would take into account the sea level rise potential and address potential impacts related to sea level rise, similar to those applied to facility installation within 100-year flood plains. Design measures may include, but are not limited to: facility siting, access placement, access vault extension above projected water elevation, water tight vaults, and site protection (see **Section 3.2, Surface Hydrology**).

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CHAPTER 8
Environmental Review and Agency Consultation/Coordination

This chapter summarizes public and agency involvement activities undertaken by NBWRA and Reclamation that have been conducted to date for the proposed project, and which satisfy CEQA and NEPA requirements for public scoping and agency consultation and coordination. **Appendix 8A** presents the distribution list that identifies the entities receiving a copy of the draft EIR/EIS. As noted previously, U.S. Bureau of Reclamation (Reclamation) is the lead agency pursuant to NEPA, and Sonoma County Water Agency (SCWA) is acting as the Lead Agency under CEQA.

Since the initial phases of project development in 2005, NBWRA has engaged and consulted with agencies, stakeholders, landowners, and the general public. The consultations assisted the NBWRA in determining the scope of the Environmental Impact Report (EIR)/ Environmental Impact Statement (EIS), identifying the range of alternatives and mitigation measures, and defining potential environmental impacts and impact significance. Consultation included informal agency communications, formal interagency meetings, and public meetings. NBWRA will continue to solicit public and agency input on the project by encouraging review of this EIR/EIS.

8.1 Stakeholder Consultation

The communication strategy for the proposed project involves informing and involving the public about the project, as well as engaging agencies and other stakeholders to partner and collaborate together to move the project forward for public and agency review. To carry-out these goals, a multi-phase public and stakeholder involvement process, involving meetings, newspaper ads, newsletters, and a project website, were developed to establish relationships with stakeholders and community awareness of the project. Between 2005 and the public scoping process in 2008, the NBWRA conducted meetings with lead agencies, city and county governments and local water agencies, environmental and stakeholder groups, homeowners associations in the action area, and potentially affected landowners.

The Member Agencies of NBWRA initially planned on individual recycled water project that were examined and refined through the Engineering Report and Feasibility Study discussed below.

Phase 1 Engineering Foundation Report (2003-2005): Member Agencies, potential stakeholders, local, state and regional agencies helped define alternatives. NBWRA, established under a

Memorandum of Understanding (MOU) in August 2005, undertook cooperative planning efforts over a 30-month period- including 17 bi-monthly technical workshops as well as monthly institutional workshops, with extensive outreach to potential Project stakeholders to define shared objects and develop feasible alternatives toward definition of region-wide water reclamation and reuse project that would enable them to meet those objectives. Under the MOU, Camp, Dresser & McKee, Inc. (CDM) prepared a Phase 1 Engineering Foundation Report. The report, completed in March 2005, represented the submittal of initial results- preliminary information on demands in the study area, possible project configuration, and preliminary cost estimates. This initial report analyzed 15 alternatives.

Phase 2 Feasibility Study Report (2006-2008) and Phase 3 Feasibility Study Report (2009): Project is introduced to public through stakeholders meetings and the NBWRA website. The Phase 2 report, completed in June 2006 and the Phase 3 report, completed in 2009, present an engineering evaluation of a proposed project for a regional approach to use of recycled water in the North San Pablo Bay Area of California. The report describes the Proposed Project area and the key water management problems and needs within the Project area, identifies water reuse opportunities in the project area, develops and analyzes alternative measures that could address the identifies water management needs, and presents an overview of associated legal and institutional requirements.

Concurrent with the technical workshops and feasibility study activities, the Member Agencies initiated public outreach efforts to collect grower or end user information at a broad scale within each Member Agency's service area. Outreach meetings were conducted which identified potential Project participants, discussed grower concerns and needs, reviewed land use mapping for accuracy, and discussed projected future changes in the agricultural industry within each service area. The ongoing outreach efforts are developing agricultural reuse contacts and working towards securing commitments to use recycled water. As Project activities carry on, potential users will continue to be invited to periodically attend NBWRA meetings and meetings with other growers and local industry representatives, and review handouts or reports. Recent public outreach efforts include a series of stakeholder meetings in the study area to introduce the Project to the general public, and development of the NBWRA's Project website, to provide information to the public on the NBWRA and the status of the Title XVI feasibility study process.

8.2 Notice of Preparation and Notice of Intent

NBWRA prepared and distributed several notification packages to inform interested parties of the scoping period and upcoming public scoping meetings.

On July 25, 2008, NBWRA (with SCWA as Lead Agency) published and distributed a Notice of Preparation (NOP) of an EIR to advise interested agencies and the public. The NOP was directly mailed to 63 government agencies and officials, and interested parties, and a postcard notification of the NOP's availability was sent to 580 parties. On July 28, 2008, Reclamation published a Notice of Intent (NOI) to prepare an EIS in the Federal Register to advise interested agencies and the public of the public comment period.

8.3 Scoping Activities

Public scoping activities are conducted as part of compliance with both NEPA and CEQA, but are more formalized under NEPA. Scoping is intended to assist in identifying the final range of actions, alternatives, site design options, environmental resources, and mitigation measures that will be analyzed in an environmental document. The scoping process helps ensure that problems are identified early and properly studied and also helps to eliminate from detailed study those issues that are not critical to the decision at hand.

The approximately 30-day scoping comment period extended from July 25, 2008 through August 28, 2008. The public was invited to submit written comments on the scope, content, and format of the project and environmental analysis by mail, fax, or email to representatives at SCWA or through the NBWRA's project website.

8.3.1 Stakeholder Outreach

During the Public Scoping process, the NBWRA met with potentially interested agencies and stakeholders in May 2008 to provide an overview of the proposed project alternatives and solicit their input. The objective of this effort was to obtain public input on issues as early as possible in the environmental review process.

8.3.2 Stakeholder Meetings

NBWRA and SCWA conducted six stakeholder meetings, two in each of the counties (Marin, Sonoma, and Napa) encompassing the NBWRA service areas, from May 6 through May 8, 2008. The format of each stakeholder meeting program was identical and began with a 15-minute open house during which participants could view exhibit boards with project information including an overview of the regional context, project objectives and purposes, possible alternatives, environmental issues, and the environmental review process. Participants were also encouraged to ask informal questions of project team members to understand the project objectives and alternatives. A formal 20-minute presentation focused on the process, schedule, and role of public comments. Following the presentation, 20 minutes were allotted for public comments on the scope, content, and format of the environmental document. Comments were accepted in writing and project team staff recorded oral comments.

8.3.3 Scoping Meetings

During the Public Scoping Process, NBWRA and SCWA conducted formal scoping meetings to gather input and comments prior to the development of the EIR/EIS. Four meetings were held at the locations below. Approximately 55 people attended the four meetings.

August 4, 2008 6:30 p.m. – 7:30 p.m. Napa Elks Lodge 2804 Soscol Avenue, Napa	August 5, 2008 6:30 p.m. – 7:30 p.m. Margaret Todd Senior Center 1560 Hill Road, Novato	August 6, 2008 6:30 p.m. – 7:30 p.m. Sonoma Community Center 276 East Napa Street, Sonoma	August 6, 2008 9:30 a.m. – 10:30 a.m. ESA Petaluma Offices 1425 N. McDowell Boulevard, Petaluma

The format of each public scoping meeting program was similar to the stakeholder meeting format discussed above. The meeting began with a 30-minute open house during which participants could view exhibit boards with project information including an overview of the regional context, project objectives and purposes, possible alternatives, environmental issues, and the environmental review process. Participants were also encouraged to ask informal questions of project team members to understand the project objectives and alternatives.

Participants were encouraged to sign in and were provided with materials including an agenda, presentation slides, and a comment card. Copies of the NOI and the NOP were available upon request. A formal 20-minute presentation focused on the process, schedule, and role of public comments. Following the presentation, 20 minutes were allotted for public comments on the scope, content, and format of the environmental document. Comments were accepted in writing and project team staff recorded oral comments.

8.3.4 Scoping Report

A Scoping Report was prepared for the NBWRA Agency Members and Reclamation. The report included an overview of scoping requirements; a summary of all comments made during the scoping process, both written and verbal; a description of the issues anticipated to be addressed in the EIR/EIS; and an appendix that included hard copies of all written comments, summaries of the scoping meetings, and other project-related print materials used to inform interested parties about the Proposed Action, project alternatives, and the EIR/EIS.

8.3.5 Public Information Materials

In addition to the NOP, NOI, and Scoping Report, several informational materials were publicly distributed to inform stakeholders about the Proposed Action to solicit their input. These materials are described below.

Newspaper Notices

A press release on the NOP notification was published in the *Santa Rosa Press Democrat, Marin Independent Journal, Napa Sentinel, and Napa Valley Register,* the primary newspapers in the action area, on Friday, July 25, 2008. The advertisements announced SCWA and Reclamation's intention to prepare an EIR/EIS, the places and times of the scoping meetings, SCWA contact information, and the availability of information on the project website and Member Agency's websites.

Notices and press releases were also published individually by Member Agencies including the Novato Sanitary District Newsletter, and a press release by the Napa Sanitation District.

Web Sites and Contact Information

Information on the project, and the environmental review process the environmental analysis was made available through the project website and by contacting NBWRA.

NBWRA Website

The NBWRA website, www.nbwra.org, includes detailed information about the proposed project and relevant studies and reports. The NOP document was posted on the website. Online comments were accepted on the website during the NOP review period.

Local Agency Websites

All the local agency members have had information about the NBWRA on their local agency websites:

Las Gallinas Valley Sanitary District (LGVSD): http://www.lgvsd.org/

Novato Sanitary District (Novato SD): http://www.novatosan.com/

Napa Sanitation District (Napa SD): http://www.napasanitationdistrict.com/

Napa County: http://www.co.napa.ca.us/

North Marin Water District (NMWD): http://www.nmwd.com/

SCWA: http://www.scwa.ca.gov/

Single Point of Contact E-mail Address

The NBWRA maintains a single e-mail address, info@nbwra.org, to make it easier for the public to communicate with the project team. Most e-mails are responded to within a few hours. All e-mails are tracked and followed up on.

Single Point of Contact Phone Hotline

The NBWRA maintains a phone number hotline, (707) 547-1923, as a single point of contact for all phone calls. The phone is answered round-the-clock by an answering service. The project received a number of calls from the public and press were received during the NOP period. Most phone calls have been responded to within a few hours of receiving them. All calls are tracked and followed up on.

General Notification Flyer

Reclamation prepared and NBWRA mailed a stakeholder meeting notification flyer to approximately 220 interested organizations, agencies, elected officials, and residents. A follow-up email was sent to 139 stakeholders with email addresses.

Conference Participation

NBWRA participated in the North Bay Watershed Conference in April 2008. NBWRA representatives provided hand outs on project information and answered questions. NBWRA also participated in the North Creek Watershed Climate Forum on October 1, 2008. The event was sponsored by Sustainability Novato. NBWRA had a table and representatives with information and maps of our project. The project also prepared and had available a special information handout on recycled water sustainability issues. The forum was advertised on the NBWRA website.

Outreach Efforts in the Napa Milliken-Sarco-Tulucay (MST) Area

In addition to the scoping invitation letter there were two other letters mailed to the entire Napa SD service area, one in April and another in October, 2008. Napa County staff participated in several public forums sponsored by a community group called Groundwater Under Local Protection (GULP), as well as in meetings and phone calls with individuals and groups. Both Napa County and Napa SD have provided information and notices about the larger regional NBWRA project and the details of the Napa MST portion of the project. Napa SD released a press story in 2008 about expansion of their recycled water system into an area that connects to the MST area.

8.4 Additional Steps in the Environmental Review Process

In accordance with CEQA and NEPA review requirements, this EIR/EIS will be circulated for public and agency review and comment for a 45-day period following the publishing of the Notice of Availability (NOA) of the EIS by Reclamation, and filing of the Notice of Completion (NOC) with the California State Clearinghouse by SCWA or NBWRA.

Similar to the approach to public scoping, three public hearings have been scheduled in Napa County, city of Novato, and Sonoma County to receive public input on the Draft EIR/EIS. These three public hearings will be held during the public comment period so that any comments received at the meetings can be addressed in the Final EIR/EIS. In addition, written comments from the public, reviewing agencies and stakeholders will be accepted during the public comment period. Following consideration of these comments, a Final EIR/EIS will be prepared and circulated per NEPA and CEQA requirements that will include responses to all comments. SCWA and Reclamation will use the Final EIR/EIS when considering approval of the Proposed Action or an alternative. If the proposed project or other alternative is approved, SCWA will accept CEQA findings and issue a Notice of Determination (NOD) and Reclamation will issue a Record of Decision (ROD) to document that decision.

8.5 Ongoing Agency and Stakeholder Consultation and Coordination

SCWA and Reclamation will continue to proactively engage interested agencies and stakeholders throughout the NEPA, CEQA, and project permitting processes. In particular, SCWA and Reclamation will continue to have regular meetings with the NBWRA Coordination Committee and Member Agencies. SCWA will also meet as needed with other agencies with potential jurisdiction over the Proposed Action, including U.S. Army Corps of Engineers, San Francisco Bay Regional Water Quality Control Board, State Water Resources Control Board, State Lands Commission, California State Office of Historic Preservation, California Department of Public Health, Bay Area Air Quality Management District, and others.

8.6 Compliance with Federal Statutes and Regulations

This section describes the status of compliance with the relevant federal laws, executive orders, and policies, and the consultation that has occurred to date or will occur in the near future. **Table 8-1** summarizes the status of consultation for the requirements that must be met by Reclamation and SCWA and/or individual Member Agencies prior to implementation of the Proposed Action.

Most of these regulations listed in Table 8-1 involve ongoing compliance, which would occur in coordination with preparation of this EIR/EIS. Chapter 3 of this EIR/EIS describes the project impacts.

8.6.1 Federal Endangered Species Act

Pursuant to the Federal Endangered Species Act (FESA), U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) have authority over projects that may result in take of a federally listed species. Under FESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take. If there is a likelihood that a project would result in take of a federally listed species, either an incidental take permit, under Section 10(a) of FESA, or a federal interagency consultation, under Section 7 of FESA, is required.

Either an Action Specific Implementation Plan (ASIP) or a Biological Assessment (BA) could be used to address the FESA and California State Endangered Species Act and the California Natural Community Conservation Planning Act (NCCPA) consultation requirements of federal and state agencies. Because the BA to be prepared for the selected project alternative focuses on issues specific to the Proposed Action, it will therefore address the biological assessment requirements. Reclamation will initiate formal consultation with USFWS and NMFS. USFWS and NMFS will then use the BA to develop biological opinions relative to the Proposed Action. DFG will use the BA to address compliance with the California Endangered Species Act and the NCCPA.

8.6.2 Clean Water Act

The Clean Water Act (CWA) is the primary surface water protection legislation throughout the country. The CWA aims to restore and maintain the chemical, physical, and biological integrity of surface waters to support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." The U.S. Environmental Protection Agency is the Federal agency with primary authority for implementing regulations adopted pursuant to the CWA, and has delegated the authority to implement and oversee most of the programs authorized or adopted for CWA compliance to U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Boards (RWQCB).

TABLE 8-1
SUMMARY OF ENVIRONMENTAL COMPLIANCE FOR THE PROPOSED PROJECT

Requirements	Status of Compliance/Expected Completion
National Environmental Policy Act	Ongoing until this EIR/EIS Record of Decision is published
California Environmental Quality Act	Ongoing until this EIR/EIS document is certified and mitigation met
Federal Endangered Species Act and California Endangered Species Act	Ongoing until project Biological Opinion issued (see Section 3.5, Biological Resources)
Magnuson-Stevens Fishery Conservation and Management Act	Ongoing until project Biological Opinion or ASIP issued (see Section, 3.5 Biological Resources)
Clean Water Act Section 401	SCWA will apply for Water Quality Certification after EIR/EIS is approved and project design underway (see Sections 3.5, Biological Resources, and Section 3.4, Water Quality)
Clean Water Act Section 404	SCWA will apply for Wetland Permit after the EIR/EIS is approved and project design underway (see Section 3.5, Biological Resources)
Clean Air Act	In compliance. Conformity analysis is not required. (see Section 3.8, Air Quality)
National Historic Preservation Act and Native American Consultation	Ongoing. Once Section 106 review process is completed, the project will proceed in accordance with conditions stipulated in the agreement with the State Historic Preservation Officer and appropriate agencies (see Section 3.12, Cultural Resources)
Executive Order 11988 - Floodplain Management	Ongoing. The project complies by using this EIR/EIS to identify and assess project effects (see Section 3.2, Surface Hydrology)
Executive Order 11990 - Protection of Wetlands	SCWA will apply for Wetland Permit after the EIR/EIS is approved and project design underway (see Section 3.5, Biological Resources)
Executive Order 12898 - Environmental Justice	In compliance based on EIR/EIS Section 3.16, Environmental Justice.
Migratory Bird Treaty Act	Reclamation and SCWA will comply with provisions of the Migratory Bird Treaty Act (see Section 3.5, Biological Resources)
California Fish and Game Code (Section 1600 Lake or Streambed Alteration Agreement Program)	Ongoing. The project complies with Section 1600 by using this EIR/EIS to identify and address expected project effects (Section 3.5, Biological Resources)
Caltrans Encroachment Permit	SCWA will apply for a Caltrans Encroachment Permit to construct within Caltrans right-of-way prior to construction (see Section 3.7, Transportation and Circulation)
Disabilities Regulations - Americans with Disabilities Act, Rehabilitation Act, and Architectural Barriers Act	Project adheres to the construction guidelines of the Uniform Federal Accessibility Standards and complies with regulations proposed for incorporation into the Americans With Disabilities Act Accessibility Guidelines as a part of design for individual facilities.
Farmland Protection Policy Act	Ongoing. (see Section 3.6, Land Use and Agricultural Resources)
Section 10 of the Rivers and Harbors Act of 1899	Ongoing. This regulation is addressed in coordination with other wetlands regulations (see Clean Water Act, Section 404, above)
NPDES Construction Stormwater Permit	SCWA will comply by preparing and using a Storm Water Pollution Prevention Plan at the time of construction (see Section 3.2, Surface Hydrology)
General Order for Dewatering and Other Low Threat Discharge to Surface Waters	SCWA will comply by preparing and using a permit at the time of construction (see Section 3.2, Surface Hydrology)

8.6.3 Section 10 of the Rivers and Harbors Act of 1899

Under Section 10 of the Rivers and Harbors Act of 1899, the construction of structures in, over, or under, excavation of material from, or deposition of material into "navigable waters" are regulated by USACE. Navigable waters of the United States are defined as those waters subject to the ebb and flow of the tide shoreward to the mean high-water mark or those that are currently used, have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. A Letter of Permission or permit from the USACE is required prior to any work being completed within navigable waters.

NBWRA Member Agencies will obtain the necessary permits from USACE prior to beginning any project-related work in navigable waters.

8.6.4 Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended in 1992) requires Federal agencies to evaluate the effects of Federal undertakings on historical, archaeological, and cultural resources, and to consult with the Advisory Council on Historic Preservation concerning potential effects of Federal actions on historic properties. Before Federal funds are approved for a particular project or prior to the issuance of any license, the effect of the project on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register shall be evaluated.

To comply with the NHPA, notices of public meetings for this project will be sent to the State Historic Preservation Officer (SHPO), which acts as an intermediary for the Advisory Council on Historic Preservation. A copy of this Draft EIR/EIS will be sent to SHPO, as a unit of the California Department of Parks and Recreation, requesting its review and soliciting input on the project. SCWA and Reclamation will coordinate with the Advisory Council on Historic Preservation and SHPO, consistent with Section 106 of the NHPA. A Phase I Cultural Resources Report has been prepared and submitted to Reclamation. Reclamation will use these document to complete Section 106 Consultation with SHPO.

Native American Consultation

Implementing regulations for Section 106 require that Federal agencies identify potentially affected Indian tribes that might have knowledge of sites of religious and cultural significance in the area of potential effects (APE) (36 CFR 800.3[f][2]). If any such properties exist, the regulations require that Federal agencies invite Indian tribes to participate in the Section 106 process as consulting parties.

The Native American Heritage Commission (NAHC) was contacted on April 28, 2008 to request a database search for sacred lands or other cultural properties of significance within or adjacent to the APE. A response was received on April 28, 2008. The sacred lands survey did not identify the presence of cultural resources in the APE. The NAHC provided a list of Native American contacts that might have further knowledge of the action area with respect to cultural resources.

Each person or organization identified by the NAHC was contacted by telephone on April 15, 2008. A meeting was held on June 27, 2008 between ESA archaeologist Heidi Koenig, California State Parks archaeologist Breck Parkman, Nick Tipon and Ken Tipon of the FIGR. The meeting was primarily informational; a general project description was given and preliminary results from the records and literature review as well as initial survey results were outlined.

Additional consultation occurred when ESA archaeologist Heidi Koenig and Nick Tipon of the FIGR conducted a supplemental survey of six locations within the APE on September 4, 2008. The purpose of this effort was to introduce Mr. Tipon to areas previously delineated as sensitive for cultural resources and incorporate any of his additional comments and perspective towards known cultural resources. Consultation with the NAHC is ongoing.

8.6.5 Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact of Federal programs with respect to the conversion of farmland to nonagricultural uses. It ensures that, to the extent possible, Federal programs are administered to be compatible with state, local, and private programs and policies to protect farmland. The Natural Resources Conservation Service (NRCS) is the agency primarily responsible for implementing the FPPA. Agricultural resources are addressed in Section 3.6 “Land Use and Agriculture”. SCWA and Reclamation will submit this EIR/EIS to the NRCS for its comment.

8.6.6 Executive Order 11988 (Floodplain Management)

Executive Order 11988—Floodplain Management (May 24, 1977) directs Federal agencies to issue or amend existing regulations and procedures to ensure that the potential effects of any action it may take in a floodplain are evaluated and that its planning programs and budget requests reflect consideration of flood hazards and floodplain management. Guidance for implementation of the Order is provided in the floodplain management guidelines of the U.S. Water Resources Council (40 CFR 6030; February 10, 1978) and in *A Unified National Program for Floodplain Management*, prepared by the Federal Interagency Floodplain Management Taskforce.

SCWA and Reclamation have considered Executive Order 11988 in their development of this EIR/EIS and have complied with this order.

8.6.7 Executive Order 11990 (Protection of Wetlands)

The purpose of Executive Order 11990 is to “minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.” To meet these objectives, the Order requires Federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. The Order applies to:

- acquisition, management, and disposition of Federal lands and facilities construction and improvement projects which are undertaken, financed or assisted by Federal agencies; and

- Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.

SCWA and Reclamation have considered Executive Order 11990 in their development of this EIR/EIS and have complied with this order. SCWA has taken a number of actions to minimize project effects on wetlands (see **Section 3.5, Biological Resources**) and will be pursuing a Clean Water Act Section 404 permit from USACE.

8.6.8 Executive Order 12898 (Environmental Justice)

Executive Order 12898, Section 2-2, requires all Federal agencies to conduct programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons the benefits of, or subjecting persons to discrimination because of their race, color or national origin. Section 1-101 requires Federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of programs on minority and low-income populations. This Draft EIR/EIS has identified and described the project's potential to result in disproportionately high and adverse human health or environmental effects on minority and low-income populations (see **Section 3.15, Environmental Justice**), as required by this order.

CHAPTER 9
Irreversible and Irretrievable Commitments of Resources

NEPA Section 102(2)(c)(v) and 40 CFR 1502.16 requires that an EIS include a discussion of the irreversible and irretrievable commitments of resources which may occur should the project be implemented. Similarly, the CEQA Guidelines require a discussion of the significant irreversible environmental changes which would be involved in the project should it be implemented. Significant irreversible environmental changes under CEQA are identified as potentially significant and unavoidable impacts in **Chapter 3** of this EIR/EIS.

Irreversible commitments of resources are those which cause either direct or indirect use of natural resources such that the resources cannot be restored or returned to their original condition. For example, the extirpation of a species from an area is an irreversible commitment. Construction activities of the proposed facilities would result in an irretrievable and irreversible commitment of natural resources though direct consumption of fossil fuels and use of materials. The proposed project activities would require connections to existing power sources, which would increase the short-term use of electricity and refined petroleum products during the operation of construction equipment (primarily gas, diesel, and motor oil). However, the energy consumption for construction would not result in long-term depletion of non-renewable energy resources and would not permanently increase reliance on energy resources that are not renewable. Construction activities would not reduce or interrupt existing electrical or natural gas services such that existing supplies would be constrained.

Depending upon the project components, the Action Alternatives (Basic System, Partially Connected System, and Fully Connected System) would result in progressively greater irreversible and irretrievable commitment of energy and material resources during project construction, operation, and maintenance, in the following forms:

- Energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles, and during operation of distribution facilities.
- Construction materials; and
- Labor;

The use of the nonrenewable resources is expected to account for a minimal portion of the region's resources and would not affect the availability of these resources for other needs within the region. Additional information on is available in **Sections 3.11, Public Services and Utilities; 3.6, Land Use**; and **3.5, Biological Resources**.

CHAPTER 10

Relationship of Short-Term Uses and Long-Term Productivity

NEPA Section 102(2)(c)(iv) and 40 CFR 1502.16 requires that an EIS include a discussion of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity. This chapter describes how the Proposed Action would affect the short-term use and the long-term productivity of the environment.

In reference to the Proposed Action, "short-term" refers to the temporary phase of construction of the proposed project, while "long-term" refers to the operational life of the proposed project and beyond. **Chapter 3** of this EIR/EIS evaluates the short-term and long-term effects that could result from the Proposed Action.

Construction of the Proposed Action would result in short-term construction-related impacts such as interference with local traffic and circulation, limited air emissions, increase in ambient noise levels, dust generation, disturbance of wildlife, increased storm runoff, and disturbance of recreational and other public facilities. These impacts would be temporary and would occur only during construction, and are not expected to alter the long-term productivity of the natural environment.

The Proposed Action would assist in the long-term productivity of the North Bay Region's urban, agricultural, and habitat uses by improving the reliability of the water supplies in the action area through the offset of potable water sources that are used for irrigation. It would assist in the long-term productivity of the environment by reducing discharge into the San Pablo Bay and recovering highly treated wastewater prior to its discharge and recycling that water for irrigation. The Proposed Action would also result in enhancing the long-term productivity of the Napa-Sonoma Salt Marsh ponds by providing a clean, reliable water supply to reduce the salinity of the ponds. These long-term beneficial effects of the Proposed Action would outweigh the potentially significant, but mitigable short-term impacts to the environment resulting primarily from project construction.

CHAPTER 11
Mitigation Monitoring and Reporting Program

This chapter summarizes the mitigation measures that would be integrated into the proposed project (i.e., North Bay Water Recycling Program or NBWRP) to reduce the potentially significant impacts to a less-than-significant level. Also provided is a Mitigation Monitoring and Reporting Program (MMRP) organized in a tabular format, keyed to each mitigation measure incorporated into the project. The tables following each measure provide a breakdown of how the mitigation measure would be implemented, who would be responsible, and when it would occur. The tables consist of four column headings which are defined as follows:

- *Implementation Procedure*: If needed, this column provides additional information on how the mitigation measures would be implemented.
- *Monitoring and Reporting Actions*: This column contains an outline of the appropriate steps to verify compliance with the mitigation measure.
- *Monitoring Responsibility*: This column contains an assignment of responsibility for the monitoring and reporting tasks.
- *Monitoring Schedule*: This column provides a general schedule for conducting each monitoring and reporting task, identifying where appropriate both the timing and the frequency of the action.
- *Responsible Agency*: This column states the agency, which would be responsible for implementing the mitigation measure.

Geology and Soils

Impact 3.1.1: Seismicity

In the event of a major earthquake in the Bay Area Region, the proposed facilities could be subject to fault rupture, severe ground shaking, liquefaction, or earthquake induced landslides capable of causing injury, structural damage, pipeline rupture and service interruption.

Mitigation Measure 3.1.1

The Member Agencies will implement the following measures:

- All proposed improvements will be designed and constructed in accordance with current geotechnical industry standard criteria, including the California Building Code (CBC) and American Waterworks Association (AWWA) criteria.

- The project construction materials and backfill materials will be designed according to a geotechnical investigation by a California-licensed geotechnical engineer or engineering geologist to address landslide, subsidence, liquefaction, and expansive soils and seismic hazards such as ground shaking and liquefaction.

- Implementation of industry standard geotechnical measures such as replacing excavated soils with engineered fill materials are effective means to overcome the potential for subsidence. If excavated soils are to be reused for backfill, they would still be appropriately compacted to mitigate the potential for subsidence or settlement and evaluated for expansion and amended, if necessary, to reduce the potential for expansion in accordance with accepted geotechnical practices.

- Proposed facilities will be designed to include flexible connections, where deemed necessary, along with backfill requirements that minimize the potential for significant damage. All other associated improvements will employ standard design and construction using the most recent geotechnical practices and California Building Code (CBC) seismic criteria, which would provide conservative design criteria.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Design improvements with current geotechnical industry standard criteria. 2. Conduct geotechnical investigation and design construction and backfill material accordingly. 3. Replace excavated soils with engineered fill or properly compacted excavated soils if reused. After placing backfill, evaluate soil's potential for expansion. 4. Design facilities to include flexible connections.	1. Incorporate design improvements into construction specifications; Comply with CBC and AWWA. 2. Incorporate design recommendations into construction specifications. 3. Incorporate procedure into construction specifications. 4. Incorporate flexible connections into construction specifications.	1. Member Agency 2. Contractor/ Member Agency 3. Contractor/ Member Agency 4. Member Agency	1. Prior to Construction 2. Prior to Construction 3. During Construction 4. Prior to Construction	Member Agency

Impact 3.1.2: Erosion

Project construction activities could result in short-term erosion and loss of topsoils.

Mitigation Measure 3.1.2

The Member Agencies will implement the following measures:

- Consistent with SWPPP requirements, the construction contractor shall be required to implement BMPs for erosion control onsite. The use of construction BMPs will minimize the potential for erosion and loss of topsoil, and shall include, without limitation, the following:
- Avoid scheduling construction activities during a rain event, but be prepared for sudden changes in conditions;
- Construct berms, silt fences, straw bales, fiber rolls, and/or sand bags around stockpiled soils;
- Cover stockpiled soils during a rain event and monitor perimeter barriers, repair as necessary;
- Stabilize entrances to work area to prevent tracking of dirt or mud onto roadways; and
- Implement dust control practices as appropriate on all stockpiled material.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Prepare a SWPPP. 2. Schedule construction to avoid rainy season. 3. Construct berms and install silt fences, straw bales, fiber rolls, and/or sand bags around stockpiled soils. 4. Cover stockpiled soils during a rain event and monitor perimeter barriers; repair as necessary. 5. Stabilize entrances to work area to prevent tracking of dirt or mud onto roadways. 6. Implement dust control practices as appropriate on all stockpiled material.	1. Incorporate erosion control BMPs into construction specifications. 2. Incorporate schedule into construction specifications. 3. Incorporate use of these measures into construction specifications. 4. Incorporate use of these measures into construction specifications. 5. Incorporate use of these measures into construction specifications. 6. Incorporate use of these measures into construction specifications.	1. Member Agency 2. Member Agency 3. Contractor/ Member Agency 4. Contractor/ Member Agency 5. Contractor/ Member Agency 6. Contractor/ Member Agency	1. Prior to Construction 2. Prior to and During Construction 3. During Construction 4. During Construction 5. During Construction 6. During Construction	Member Agency

Impact 3.1.3: Unstable Soils

Project improvements could be located on expansive soils that over time could cause damage to foundations and pipelines resulting in service disruptions.

Mitigation Measure

The Member Agencies will implement the Mitigation Measure 3.1.1.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.1.1	1. Incorporate use of these measures into construction specifications.	1. Contractor/ Member Agency	1. Prior to and During Construction	Member Agency

Impact 3.1.4: Expansive Soils

Project improvements could be located on expansive soils that over time could cause damage to foundations and pipelines resulting in service disruptions.

Mitigation Measure

The Member Agencies will implement the Mitigation Measure 3.1.1.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.1.1	1. Incorporate use of these measures into construction specifications.	1. Contractor/ Member Agency	1. Prior to and During Construction	Member Agency

Surface Hydrology

Impact 3.2.1: Changes in Drainage Patterns

Project construction could modify existing drainage patterns.

Mitigation Measure 3.2.1

The Member Agencies would implement the following measure during pipeline installation at stream crossings:

- Schedule construction so as to avoid storm events to the extent feasible;
- Use trenchless techniques such as jack and bore tunneling to avoid direct impacts to the streams;
- Employ short-term drainage diversion and control measures such as sandbags, dikes, pumps, or other means; and
- Following construction, restore the construction area to pre-existing conditions

- Implement **Mitigation Measure 3.5.1** (see Section 3.5).

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Schedule construction to avoid rainy season. 2. Integrate trenchless techniques such as jack and bore to avoid streams. 3. Employ short-term drainage diversion and control measures such as sandbags, dikes, pumps, or other means. 4. Restore site to pre-existing conditions.	1. Incorporate schedule into construction specifications. 2. Incorporate use of trenchless techniques into construction specifications. 3. Incorporate use of these measures into construction specifications. 4. Inspect final site conditions after construction and verify its condition is it equivalent to that prior to construction. Incorporated into construction specifications.	1. Member Agency 2. Contractor/ Member Agency 3. Contractor/ Member Agency 4. Contractor/ Member Agency	1. Prior to and During Construction 2. Prior to Construction 3. During Construction 4. After Construction	Member Agency

Impact 3.2.3: Increased Storm Runoff

New impervious surfaces for NBWRP would result in an increase in storm runoff.

Mitigation Measure 3.2.3

The Member Agencies will implement the following measures:

- Comply with the local storm drainage requirements;
- Incorporate site design features to control any site runoff onsite; and
- Install storm runoff, collection, and treatment system, as applicable, to control the runoff flow offsite.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Comply with the local storm drainage requirements. 2. Incorporate site design features to control any site runoff onsite.	1. Incorporate requirements into construction specifications. 2. Incorporate features into construction specifications.	1. Member Agency 2. Member Agency 3. Contractor/ Member Agency	1. Prior to Construction 2. Prior to Construction 3. During and After Construction	Member Agency

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
3. Install storm runoff, collection, and treatment system, as applicable, to control the runoff flow offsite.	3. Monitor efficacy of system and regularly maintain it.			

Impact 3.2.4: Flooding – Sea Level Rise

Sea-level rise could affect operation of project facilities.

Mitigation Measure 3.2.4

Design of proposed facilities shall consider sea level rise potential, and shall include appropriate measures in facility siting and design to address potential impacts related to sea level rise, similar to those applied to facility installation within 100-year flood plains. Design measures may include, but are not limited to: facility siting, access placement, access vault extension above projected water elevation, water tight vaults, and site protection.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Design facility to address potential impacts related to sea level rise. Design measures may include but are not limited to: facility siting, access placement, access vault extension above projected water elevation, water tight vaults, and site protection.	1. Incorporate design requirements into construction specifications.	1. Member Agency	1. Prior to construction	LGVSD/NMWD, Novato SD/ NMWD, SVCSD

Groundwater Resources

Impact 3.3.2: Hydrostatic Pressure

Proposed facilities may be affected by shallow groundwater levels and natural groundwater fluctuations.

Mitigation Measure 3.3.1

The Member Agencies will implement the following measures:

- All proposed improvements will be designed and constructed in accordance with current geotechnical industry standard criteria.
- Implement industry standard geotechnical measures to address high groundwater conditions as appropriate to reduce the potential for impacts related to groundwater fluctuation, in accordance with accepted geotechnical practices. Possible design features include drainage blankets, perimeter pumps to temporarily decrease hydrostatic pressure, perimeter drainage trenches, and specific groundwater monitoring scenarios.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Design improvements with current geotechnical industry standard criteria. 2. Design improvements to address high groundwater conditions in accordance with accepted geotechnical practices. Possible design features include but are not limited to: drainage blankets, perimeter pumps to temporarily decrease hydrostatic pressure, perimeter drainage trenches, and specific groundwater monitoring scenarios.	1. Incorporate design requirements into construction specifications. 2. Incorporate design requirements into construction specifications.	1. Member Agency 2. Member Agency	1. Prior to construction 2. Prior to construction	Member Agency

Water Quality

Impact 3.4.1: Short Term Construction-Related Effects

Disturbance of soils during construction of new project-related infrastructure could generate short term erosion-related water quality impacts. Construction activities could result in the accidental release of fuels or hazardous materials. Project construction activities could require dewatering that could result in the discharge of turbid waters into the local storm drain systems or nearby creeks.

Mitigation Measure 3.4.1a

NPDES Construction Activity Stormwater Permit. Member Agencies or their contractor shall comply with the provisions of the NPDES Construction Activity Stormwater permit, including preparation of Notice of Intent to comply with the provisions of this General Permit and preparation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP will identify implementation measures necessary to mitigate potential water quality degradation as a result of

construction-related runoff. These measures will include BMPs and other standard pollution prevention actions, such as erosion and sediment control measures, proper control of non-stormwater discharges, and hazardous spill prevention and response. The SWPPP will also include requirements for BMP inspections, monitoring, and maintenance.

The following items are examples of BMPs that would be implemented during construction to avoid causing water quality degradation:

- Erosion control BMPs, such as use of mulches or hydroseeding to prevent detachment of soil, following guidance presented in the California BMP Handbooks – Construction (CASQA 2003). A detailed site map will be included in the SWPPP outlining specific areas where soil disturbance may occur, and drainage patterns associated with excavation and grading activities. In addition, the SWPPP will provide plans and details for the BMPs to be implemented prior, during, and after construction to prevent erosion of exposed soils and to treat sediments before they are transported offsite.
- Sediment control BMPs such as silt fencing or detention basins that trap soil particles.
- Construction staging areas designed so that stormwater runoff during construction will be collected and treated in a detention basin or other appropriate structure.
- Management of hazardous materials and wastes to prevent spills.
- Groundwater treatment BMPs such that localized trench dewatering does not impact surface water quality.
- Vehicle and equipment fueling BMPs such that these activities occur only in designated staging areas with appropriate spill controls.
- Maintenance checks of equipment and vehicles to prevent spills or leaks of liquids of any kind.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Submit Notice of Intent and SWPPP for the NPDES General Construction Permit 2. Incorporate BMPs in standard construction procedures	1. Comply with the SWPPP and NPDES permit requirements 2. Implement BMPs	1. Contractor 2. Contractor/ Member Agency	1. Prior to construction 2. During and following construction	Member Agency

Impact 3.4.6: Surface Water Storage

The proposed project would include storage of recycled water at existing WWTP facilities, as well as at individual user properties. Storage of recycled water quality would have the potential to affect localized surface water quality or groundwater quality.

Mitigation Measure 3.4.6a

Under the Master Recycling Permit for each Member Agency and Cooperating Agency, user agreements shall include provisions for compliance with Title 22 and the State Recycled Water Policy regarding storage and use of recycled water onsite at individual properties.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Incorporate provisions for compliance with Title 22 and State Recycled Water Policy in user agreements. 2. Comply with provisions in the user agreement	1. Execute agreement 2. Execute agreement	1. Member Agency/Users 2. Member Agency/Users	1. During project operation (recycled water use) 2. During project operation (recycled water use)	Member Agency/ Users

Mitigation Measure 3.4.6b

Prior to storage of recycled water in any "on-stream" storage facility that directly receives and releases stream flow, each Member Agency or Cooperating Agency shall enter into discussions with RWQCB regarding operational requirements to ensure operation of proposed facilities in compliance with Title 22 and the State Recycled Water Policy. It is anticipated that specific operational standards, such as pumping on-stream ponds dry prior to the onset of winter rains or other measures, would be required in order to ensure storage in compliance with Title 22.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Enter into discussions with San Francisco Bay RWQCB regarding operational requirements for the proposed facilities. 2. Comply with requirements	1. Incorporate requirements into standard operational procedures. 2. Incorporate requirements into standard operational procedures.	1. Member Agency 2. Member Agency	1. Project operation/ prior to storage of recycled water 2. Project operation	Member Agency

Impact 3.4.9: Reuse for Habitat Restoration

Disinfected tertiary-treated wastewater from the SVCSD WWTP would be delivered to the Napa Salt Marsh ponds as a dilution source for bittern ponds, thereby improving water quality.

Mitigation Measure 3.4.9a

SVCSD and Napa SD (as appropriate) shall implement the following measures:

- Prepare a Management Plan required by the San Francisco Bay RWQCB to obtain a discharge prohibition. The management plan will comply with the RWQCB Resolution 94-086. The management plan will include the following features for Ponds 7 and 7A:

  a) Facility Plan, includes project purpose and objectives, site selection factors, site sampling and analyses, planning and design elements.

  b) Operations and Maintenance plan, includes vegetation planning and harvesting, channel and bank maintenance, pump and gate maintenance, vector controls, and contingency/emergency plans.

  c) Monitoring Program, includes monitoring of pollutants, habitat diversity, wildlife use, and vector populations; and

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Prepare Management Plan in compliance with RWQCB's requirements. 2. Implement the Management Plan	1a. Incorporate requirements in the Management Plan 1b. Incorporate Facility Plan, Operations and Maintenance plan, and monitoring program in the Management Plan. 2. Report results as required	1a. SVCSD/ Napa SD 1b. SVCSD/Napa SD 2. SVCSD/ Napa SD	1a. Prior to operation 1b. Prior to operation 2. During operation	SVCSD and Napa SD

Biological Resources

Impact 3.5.1: Impacts on Wetlands, Streams and Riparian Habitats

Construction of the Proposed Project could result in impacts to jurisdictional wetlands and other waters of the United States, as well as impacts to riparian habitat.

Mitigation Measure 3.5.1

Implement the following measures to avoid, minimize and compensate for impacts to jurisdictional wetlands and other waters of the U.S. and impacts to riparian habitat.

Construction activities resulting in the introduction of fill or other disturbance to jurisdictional wetlands and other waters of the U.S. will require permit approval from the U.S. Army Corps of Engineers and water quality certification from the Regional Water Quality Control Board, pursuant to Section 401 of the Clean Water Act. The Proposed Project will most likely be authorized under Nationwide Permit #12 (Utility Lines) pursuant to Section 404 of the Clean Water Act. The CDFG has jurisdiction in the project area over riparian habitat, including stream

bed and banks, pursuant to Sections 1600-1616 of the Fish and Game Code. Pipeline construction resulting in alteration to channel bed or banks, extending to the outer dripline of trees forming the riparian corridor, is subject to CDFG jurisdiction. The project proponent will be required to obtain a Streambed Alteration Agreement (SAA) from the CDFG. Terms of these permits and SAA will likely include, but will not necessarily be limited to, the mitigation measures listed below.

1) Specific locations of pipeline segments, storage reservoirs, and pump stations shall be configured, wherever feasible, to avoid and minimize direct and indirect impacts to wetlands and stream drainage channels. Consideration taken in finalizing configuration placement shall include:

   - Reducing number and area of stream channel and wetland crossings where feasible. Crossings shall be oriented as close to perpendicular (90 degree angle) to the drainage or wetland as feasible.

   - Placement of project components as distant as feasible from channels and wetlands.

   - For pipeline construction activities in the vicinity of wetland and stream drainage areas, the construction work area boundaries shall have a minimum 20-foot setback from jurisdictional features[1]. Pipeline construction activities in proximity to jurisdictional features include: 1) entrance and exit pits for directional drilling and bore and jack operations; and 2) portions of pipeline segments listed as “parallel” to wetland/water features.

2) Sites identified as potential staging areas will be examined by a qualified biologist prior to construction. If potentially jurisdictional features are found that could be impacted by staging activities, the site will not be used.

3) Construction methods for channel crossing shall be designed to avoid and minimize direct and indirect impacts to channels to the greatest extent feasible. Use of trenchless methods including suspension of pipeline from existing bridges, directional drilling, and bore and jack tunneling will be used when feasible. Trenchless methods are required for all perennial drainage crossings (i.e., Sonoma Creek). Construction occurring in the vicinity of riparian areas shall be delimited with a minimum 20-foot setback to avoid intrusion of construction activities into sensitive habitat.

   The following additional measures shall apply to channel crossings in which the trenching construction method is used:

   - Limiting of construction activities in drainage channel crossings to low-flow periods: approximately April 15 to October 15.

   - At in-road drainage crossings where drainages pass beneath the road in existing culverts, and where there is sufficient cover between the culvert and road surface, the new pipeline will be installed above the existing culvert without removing or disturbing it. If the pipeline must be installed below the existing culvert, then the culvert will be cut and temporarily removed to allow pipeline installation.

[1] Setbacks of channels with associated riparian vegetation will be from the outer dripline edge of the riparian corridor canopies and/or the upper bank edge, or per City or County code, whichever is greater.

- At off-road drainage crossings, the construction corridor width will be minimized to the greatest extent feasible at the crossing and at least 20 additional feet to either side of the drainage at the crossing.
- If disturbance of the existing culvert is required, sediment curtains upstream and downstream of the construction zone shall be placed to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone.

4) Implement BMPs required in **Mitigation Measure 3.4.1** to reduce risk of sediment transport into all construction areas in proximity of drainages.

5) For channels or wetlands for which soil removal is necessary (off-road crossings or wetlands to be trenched or otherwise directly disturbed), the top layer of the drainage or wetland bottom shall be stockpiled and preserved during construction. After the pipeline has been installed, the stockpiled material shall be placed back into the drainage or wetland feature to return the beds to approximately their original composition.

6) To offset temporary and permanent impacts to wetlands and other waters of the U.S., and impacts to riparian habitat, compensatory mitigation will be provided as required by regulatory permits and SAAs.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Acquire permits from USACE, CDFG, and RWQCB. 2. Implement Best Management Practices (BMPs). 3. Stockpile excavated soil. 4. Implement compensatory mitigation.	1. Comply with regulatory permit. 2. Sign-off on inspection report and/ or MMRP. 3. Sign-off on inspection report and/ or MMRP. 4. Comply with regulatory permits and SAAs.	1. Member Agency 2. Contractor 3. Contractor 4. Member Agency	1. Prior to Construction 2. During Construction 3. During Construction 4. Prior to and During Construction	Member Agency

Impact 3.5.2: Construction Impacts on Special-status Fish and California Freshwater Shrimp

Construction of Proposed Project facilities could affect special-status invertebrate or fish species including central California coast steelhead, Chinook salmon, California freshwater shrimp, Pacific lamprey, and Sacramento splittail, or designated critical habitat for steelhead.

Mitigation Measure 3.5.2

Specific measures shall be implemented to protect aquatic habitats potentially inhabited by special-status fish and California freshwater shrimp.

Sensitive fisheries and other aquatic resources shall be protected by minimizing in-stream and near-stream habitat impacts during project design, informally consulting with resource agencies (NMFS, USFWS, CDFG, and USACOE), and implementing protective measures. For Sonoma Creek, Petaluma River, Napa River, and other perennial drainages, special-status fish are presumed present. California freshwater shrimp are presumed present in Sonoma Creek. Because of the sensitivity of seasonal and ephemeral drainages, the following measures will be required to avoid and minimize impacts to aquatic habitat:

1) Project designs shall be reconfigured, whenever feasible, to avoid direct impacts to sensitive wetland areas and minimize disturbances to wetland and riparian corridors. Ground disturbance and construction footprints in these areas shall be minimized to the greatest degree feasible.

2) If trenching or directional boring stream crossing methods are used, the construction schedule of such activities shall be implemented according to conditions of the SAAs.

3) In-stream construction shall be avoided at all locations that are known, or presumed, to support threatened or endangered species, if at the time of construction such locations contain flowing or standing water.

4) In the event that equipment shall operate in any watercourse with flowing or standing water, the project proponent will ensure that they have the appropriate permit authorizations.

5) Prior to construction, a qualified biologist shall install fencing to establish a minimum 20-foot setback from sensitive habitat.

6) For work sites located adjacent to sensitive aquatic sites, a biological resource education program shall be provided by a qualified biologist, as per conditions of the SAAs.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Consult with resource agencies . 2. Implement recommendations derived during consultation.	1. Design protective measures. 2. Comply with permit conditions; sign-off on inspection report and/or MMRP	1. Member Agency 2. Contractor	1. Prior to Construction 2. During Construction	Member Agency

Impact 3.5.3: Long term Impacts on Special-status Fish

Operation of the proposed project has the potential to affect special-status fish species due to reduced discharges from the WWTPs.

Mitigation Measure 3.5.3

Implementation of **Mitigation Measure 3.5.5** for the protection of California red-legged frogs and **Mitigation 3.5.1** for protection and restoration of wetlands would protect special-

status invertebrates that could potentially be impacted by the project. No specific mitigation is required.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.5.1. 2. Implement Mitigation Measure 3.5.5.	1. Comply with regulatory permit; sign-off on inspection report and/ or MMRP. 2. Comply with permit conditions; sign-off on inspection report and/or MMRP.	1. Member Agency/ Contractor 2. Contractor/ Qualified Biologist	1. Prior to and During Construction 2. Prior to Construction	Member Agency

Impact 3.5.4: Impacts on Special-status Invertebrates

Construction of Proposed Project facilities could impact special-status invertebrates including Myrtle's silverspot butterfly, Opler's longhorn moth, Monarch butterfly wintering sites, Ricksecker's water scavenger beetle and California brackishwater snail.

Mitigation Measure 3.5.3

Mitigation Measure 3.5.3 would reduce potential impacts on special-status invertebrates to a less-than-significant level.

Implementation of **Mitigation Measure 3.5.5** for the protection of California red-legged frogs and **Mitigation 3.5.1** for protection and restoration of wetlands would protect special-status invertebrates that could potentially be impacted by the project. No specific mitigation is required.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.5.3. 2. Implement Mitigation Measure 3.5.1. 3. Implement Mitigation Measure 3.5.5.	1. Comply with regulatory permit; sign-off on inspection report and/ or MMRP. 2. Comply with regulatory permit; sign-off on inspection report and/ or MMRP. 3. Comply with permit conditions; sign-off on inspection report and/or MMRP	1. Member Agency 2. Member Agency/ Contractor 3. Contractor/ Qualified Biologist	1. Prior to and During Construction 2. Prior to and During Construction 3. Prior to and During Construction	Member Agency

Impact 3.5.5: Impacts on Western Pond Turtle

Construction of the proposed project has the potential to impact western pond turtles in upland and aquatic habitat.

Mitigation Measure 3.5.5

Implement protection measures to avoid and minimize impacts to western pond turtles.

- When working within 200 feet of stream crossings, all construction personnel shall receive awareness training relating to the protection of western pond turtles, in accordance with the SAAs. Also, to minimize the likelihood of encountering turtles in upland areas near stream crossings, construction footprints shall be minimized to the greatest extent feasible. Based on reconnaissance-level surveys, if staging and construction activities occur principally within or immediately adjacent to project alignment roads the project will be outside of principal pond turtle habitat.

- Within 48 hours prior to the start of construction activities, a qualified biologist shall perform pond turtle surveys within suitable habitat within projected work areas. If a pond turtle nest is located within a work area, a biologist with the appropriate permits may move the eggs to a suitable facility for incubation, and release hatchlings into the creek system in late fall.

The measures proposed for protection of aquatic species and red-legged frogs (**Mitigation Measure 3.5.2 and Mitigation Measure 3.5.6**) will additionally protect western pond turtles during construction.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Conduct awareness training for construction personnel working within 200 feet of stream crossings. 2. Conduct pond turtle surveys; move eggs if necessary. 3. Implement Mitigation Measure 3.5.2. 4. Implement Mitigation Measure 3.5.6.	1. Comply with SAA permit; sign-off on inspection report and/ or MMRP. 2. Comply with regulatory permits; sign-off on inspection report and/ or MMRP 3. Comply with permit conditions; sign-off on inspection report and/or MMRP 4. Comply with SAA permit conditions; sign-off on inspection report and/or MMRP.	1. Contractor/ Member Agency 2. Qualified Staff Biologist 3. Contractor 4. Contractor/ Qualified Biologist	1. Prior to construction 2. 48 hours Prior to Construction 3. Prior to and During Construction 4. Prior to and During Construction	Member Agency

Impact 3.5.6: Impacts on California Red-legged Frog

Construction of the Proposed Project has the potential to affect California red-legged frogs, if present.

Mitigation Measure 3.5.6

Protection measures to avoid and minimize impacts on California red-legged frogs.

1) The implementation of measures identified for the protection of special-status fish and California freshwater shrimp would also protect California red-legged frogs within aquatic habitat. All protection measures identified in **Mitigation Measure 3.5.2** shall be applied to the protection of red-legged frogs at sites that provide potential aquatic habitat for this species. These include informal USFWS consultation, avoiding aquatic habitat, establishing a suitable buffer from the aquatic habitat (e.g., 50 feet), and implementing a worker education program.

2) All work activities within or adjacent to aquatic habitat that is potentially occupied by red-legged frogs will be completed between May 1 and November 1.

3) A qualified biological resource monitor will conduct a training session for construction personnel working in upland habitat near potentially occupied drainages, as per conditions of the SAAs.

4) All trash that could attract predators will be regularly contained and removed from the work site.

In the event trenchless methods cannot be employed, the project proponent would obtain appropriate permit authorizations and implement construction methods per applicable Streambed Alteration Agreements.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.5.2. 2. Complete all work within or adjacent to aquatic habitat that is inhabited by red-legged frogs between May 1 and November 1 3. Conduct training sessions for construction personnel working in upland habitat near potential occupied drainages. 4. Implement trash removal and trenchless construction methods where necessary.	1. Comply with permit conditions; sign-off on inspection report and/or MMRP. 2. Incorporate into contract specifications. 3. Comply with SAA permit conditions; sign-off on inspection report and/or MMRP. 4. Comply with SAA permit conditions; sign-off on inspection report and/or MMRP.	1. Contractor/ Qualified Biologist 2. Contractor 3. Qualified Biologist/ Construction Personnel 4. Contractor	1. Prior to and During Construction 2. During Construction 3. During Construction 4. During Construction	Member Agency

Impact 3.5.7: Impacts on Threatened and Endangered Marsh Birds

Construction of the proposed project has the potential to affect western snowy plover, California black rail and California clapper rail and their habitat in and near the project alignments.

Mitigation Measure 3.5.7

To minimize the likelihood of project effects on threatened and endangered marsh birds, the following mitigation measures will be implemented:

- Protocol-level surveys will be conducted in locations with suitable habitat to determine species presence or absence.
- Agency consultation will be initiated.
- Construction activities will occur during the non-breeding season, September 15 through January 31. The combined breeding season for all three species extends from February 1 through September 14.
- Construction personnel will receive environmental awareness training specific to the identification of clapper rails, black rails, western snowy plover and their habitat.
- Any clapper rail and western snowy plover activity will be immediately reported to the USFWS; black rail activity will be reported to the CDFG.
- Construction activities will be constrained to the smallest area possible to minimize marsh disturbance.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Conduct protocol-level surveys in areas that contain suitable nesting bird habitat 2. Initiate consultation with resource agency. 3. Adhere to construction schedule with respect to bird breeding season. 4. Conduct training sessions for construction personnel specific to identification of sensitive bird habitat. 5. In the event of presence of sensitive birds, coordinate with CDFG and/ or USFWS.	1. Incorporate survey results and recommendations into project contract specifications. 2. Develop and implement avoidance measures. 3. Incorporate into contract specifications. 4. Incorporate into contract specifications; sign-off on inspection report and/or MMRP. 5. Implement avoidance measures derived from agency coordination.	1. Qualified Staff Biologist 2. Member Agency 3. Contractor/ Member Agency 4. Qualified Biologist/ Construction Personnel 5. Contractor/ Member Agency	1. Prior to Construction 2. Prior to Construction 3. During Construction 4. Prior to Construction 5. During Construction	Member Agency

Impact 3.5.8: Impacts on Burrowing Owl

Construction of the proposed project could result in direct and indirect impacts to burrowing owls, if present in portions of the project alignment.

Mitigation Measure 3.5.8

The following measures to avoid, minimize, or mitigate impacts on burrowing owls would be incorporated into the project.

- In areas identified to provide potential burrowing owl habitat, preconstruction surveys for burrowing owls would be conducted by a qualified biologist 14-30 days prior to the start of construction. Surveys would cover grassland areas within 500-foot buffer and check for adult and juvenile burrowing owls and their habitat.
- Construction exclusion areas would be established around the occupied burrows in which no disturbance would be allowed to occur. During the non-breeding season (September 1 through January 31), the exclusion zone would extend 160 feet around occupied burrows. During the breeding season (February 1 through August 31), exclusion areas would extend 250 feet around occupied burrows. Passive relocation of owls is not proposed.
- A qualified biologist (the on-site monitor or otherwise) will monitor owl activity on the site to ensure the species is not adversely affected by the project.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Conduct surveys for adult and juvenile burrowing owls within a 500-foor buffer. 2. Establish construction exclusion areas of appropriate size, as defined by breeding seasons). 3. Monitor owl activity on construction sites.	1. Incorporate survey results and recommendations into project contract specifications. 2. Incorporate in contract specifications. 3. Summarize results and recommendations in daily log; sign-off on inspection report and/or MMRP.	1. Qualified Biologist 2. Contractor 3. Qualified Biologist	1. 14-30 days Prior to Construction 2. Prior and During Construction 3. During Construction	Member Agency

Impact 3.5.9: Impacts on Nesting Birds

Construction of the proposed project has the potential to affect nesting birds including Swainson's hawk, willow flycatcher, sharp-shinned hawk, Cooper's hawk, tri-colored blackbird, Bell's sage sparrow, golden eagle, northern harrier, California yellow-warbler, white-tailed kite, California horned lark, salt marsh common yellowthroat, loggerhead shrike, San Pablo song sparrow, California thrasher, rookeries, and additional bird species protected by California Fish and Game Code Section 3503 and the federal Migratory Bird Treaty Act (16 USC, Sec. 703, Supp. I, 1989).

Mitigation Measure 3.5.9

The appropriate Member Agency shall implement the following protection elements to avoid disturbing common and special-status nesting birds:

- Whenever feasible, vegetation shall be removed during the non-breeding season (generally defined as September 1 to January 31).
- For ground disturbing activities occurring during the breeding season (generally defined as February 1 to August 31), a qualified wildlife biologist will conduct preconstruction surveys of all potential nesting habitat for birds within 500 feet of earthmoving activities.
- If active bird nests are found during preconstruction surveys, a 500-foot no-disturbance buffer will be created around active raptor nests during the breeding season or until it is determined that all young have fledged. A 250-foot buffer zone will be created around the nests of other special-status birds. These buffer zones are consistent with CDFG avoidance guidelines; however, they may be modified in coordination with CDFG based on existing conditions at work locations.
- If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation is required. Trees and shrubs that have been determined to be unoccupied by special-status birds or that are located at least 500 feet from active nests may be removed.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Limit vegetation removal to non-breeding season (September 1 to January 31) 2. In the event that construction occurs during the breeding season (February 1 to August 31), conduct surveys of all potential nesting habitat within 500 feet of earthmoving activities. 3. In the event that active bird nests are found during preconstruction surveys, establish a 500 foot buffer around active nest sites. Establish a 250-foot buffer around other active special-status bird nests. 4. Remove trees, if necessary, that are not occupied by special-status birds.	1. Incorporate into contract specifications. 2. Incorporate survey results and recommendations into contract specifications. 3. Comply with CDFG guidelines. 4. Sign-off on inspection report and/ or MMRP.	1. Contractor 2. Qualified Biologist 3. Contractor 4. Contractor	1. During Construction 2. Prior to Construction 3. During Construction 4. During Construction	Member Agency

Impact 3.5.10: Impacts on Salt Marsh Harvest Mouse and Suisun Ornate Shrew

Construction of the proposed project has the potential to affect salt marsh harvest mouse and suisun ornate shrew and their habitat in and near the project alignments.

Mitigation Measure 3.5.10

The appropriate Member Agency shall implement protection measures to avoid and minimize impacts on salt marsh mammals during construction.

Where avoidance of sensitive habitat is not feasible (e.g., by bridging or bore and jack), consultation with CDFG and/or USFWS would be initiated. If species are present or presumed to be present after informal consultation with USFWS and/or CDFG, then a formal consultation and Biological Assessment in support of a Biological Opinion would be required. Such a consultation would proceed as part of the Corps 404 permitting program.

To avoid potential impacts on salt marsh harvest mouse and Suisun ornate shrew, a qualified biologist shall conduct specific preconstruction surveys prior to project initiation, following USFWS survey guidelines. The project proponent shall install exclusionary fences to prevent species movement into the project area, and a biologist with the appropriate permits to relocate these species shall live-trap mice and shrews within the enclosure and move these animals outside the fence. The biological monitor shall inspect these fences to ensure their integrity, and shall conduct an education workshop for contractors employees outlining species' biology, legislative protection, and construction restrictions to reduce potential impacts.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Consult with CDFG and/ or USFWS when avoidance of sensitive habitat is not feasible. 2. Conduct surveys for salt harvest mouse and Suisun ornate shrew. 3. Install exclusion fencing; conduct fence inspections. 4. Relocate species if necessary. 5. Conduct education workshops to inform construction personnel.	1. Compliance with recommendations and/ or Biological Assessment in support of a Biological Opinion. 2. Comply with USFWS guidelines; incorporate survey results and recommendations into contract specifications. 3. Comply with regulatory permit conditions; sign-off on inspection report and/ or MMRP. 4. Comply with regulatory permit conditions; sign-off on inspection report and/ or MMRP. 5. Incorporate into contract specifications; sign-off on inspection report and/or MMRP.	1. Member Agency/ Contractor 2. Qualified Biologist 3. Contractor/ Qualified Biologist 4. Qualified Biologist 5. Qualified Biologist/ Construction Personnel	1. Prior to Construction 2. Prior to Construction 3. During Construction 4. Prior to Construction 5. Prior to Construction	Member Agency

Impact 3.5.11: Impacts on Special-Status Bats

Construction of the proposed project has the potential to affect roosting or breeding special-status bats in and near the project alignments.

Mitigation Measure 3.5.11

The appropriate Member Agency shall implement protection measures to avoid and minimize impacts on special-status bats in and near project facilities during construction.

Concurrent with breeding bird surveys (**Mitigation Measure 3.5.8**), a qualified biologist will conduct preconstruction surveys for special-status bats at each bridge crossing location and in rural (i.e., non-road) areas where any large trees (e.g., > 24 inch diameter at breast height) will be removed. If an active roost is observed, a suitably-sized buffer (e.g., 100 to 150 feet) will be placed around the roost if it appears that trenching or other project activities may cause abandonment. Demolition activities must cease until juvenile bats are self-sufficient and will not be directly or indirectly impacted by activities.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.5.8. 2. Conduct species surveys at specified locations. 3. Establish 100-150-foot buffers around active roosts; cease demolition activities until juvenile bats are self-sufficient.	1. Summarize results and recommendations in daily log; sign-off on inspection report and/or MMRP. 2. Incorporate results and recommendations into contract specifications; sign-off on inspection report and/ MMRP. 3. Incorporate into contract specifications; sign-off on inspection report.	1. Qualified Biologist/ Contractor 2. Qualified Biologist 3. Contractor	1. Prior to and During Construction 2. Prior to construction 3. During Construction	Member Agency

Impact 3.5.12: Impacts on American Badger

Construction of the proposed project has the potential to affect American badger and its habitat in and near the project alignments.

Mitigation Measure 3.5.12

Mitigation Measure 3.5.12 would be implemented prior to ground-clearing activities to reduce potential impacts on badgers to a less-than-significant level.

Avoid and minimize impacts on badgers through preconstruction surveys prior to ground clearing and grading in annual grasslands habitat or areas that are known or suspected to support badger.

- Within 30-days prior to ground-clearing, a qualified biologist shall survey areas that provide potential badger habitat that occur within 100-feet of project activities. If no evidence of badgers presence is detected, no further mitigation is required. If active badger dens are identified within the project area, badgers will be passively relocated. If identified, vacated dens shall be temporarily covered using plywood sheets or similar materials to prevent badgers from returning to the project area during construction.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Conduct species surveys to identify potential badger habitat with 100 feet of project site. 2. In the event that badger dens are identified, passively relocate badgers.	1. Incorporate survey results and recommendations into contract specifications. 2. Comply with biologist recommendations.	1. Qualified Biologist 2. Qualified Biologist	1. 30 days Prior to Construction 2. Prior to Construction.	Member Agency

Impact 3.5.13: Impacts on Rare Plants

Project construction could result in impacts to listed and other special-status plants.

Mitigation Measure 3.5.13

Before the initiation of any vegetation removal or ground-disturbing activities in areas that provide suitable habitat for special-status plants, the following measures shall be implemented:

- A qualified botanist will conduct appropriately-timed surveys for special-status plant species, including those identified in Table 3.5.1, in all suitable habitat that would be potentially disturbed by the project.

- Surveys shall be conducted following CDFG- or other approved protocol.

- If no special-status plants are found during focused surveys, the botanist shall document the findings in a letter to the appropriate agencies and no further mitigation will be required.

  If special-status plants are found during focused surveys, the following measures shall be implemented:

  - Information regarding the special-status plant population shall be reported to the CNDDB.

  - If the populations can be avoided during project implementation, they shall be clearly marked in the field by a qualified botanist and avoided during construction activities. Before ground clearing or ground disturbance, all on-site construction personnel shall be instructed as to the species' presence and the importance of avoiding impacts to this species and its habitat.

  - If special-status plant populations cannot be avoided, consultations with CDFG and/or USFWS would be required. A plan to compensate for the loss of special-status

plant species could be required, detailing appropriate replacement ratios, methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures that would be implemented if the initial mitigation fails; the plan would be developed in consultation with the appropriate agencies prior to the start of local construction activities.

- If mitigation is required, the project proponent shall maintain and monitor the mitigation area for 5 years following the completion of construction and restoration activities. Monitoring reports shall be submitted to the resource agencies at the completion of restoration and for 5 years following restoration implementation. Monitoring reports shall include photo-documentation, planting specifications, a site layout map, descriptions of materials used, and justification for any deviations from the mitigation plan.

Impact 3.5.14: Impacts on Heritage and Other Significant Trees

The proposed project could affect heritage and other significant tress.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Conduct plant surveys. 2. Implement measures if special-status plants are present. 3. Mark special status plants and inform construction personnel of their presence. 4. Consult with CDFG and/or USFWS if special-status plants cannot be avoided. 5. If compensatory mitigation is required, monitor mitigation area.	1. Comply with CDFG protocol. Incorporate results and recommendations into contract specifications. In the event that no special-status plants are present, document findings in a letter to the appropriate resources agency. 2. Report information regarding present special-status plants to CNDDB. 3. Sign-off on inspection report and/or MMRP. 4. Coordination with CDFG and or USFWS; compliance with recommendations; development of a compensation plan. 5. Submit annual monitoring reports to resource agencies that include photo documentation, planting specifications, site layout map.	1. Qualified Botanist 2. Qualified Botanist 3. Qualified Botanist 4. Member Agency 5. Member Agency	1. Prior to Construction 2. During Construction 3. Prior to Construction 4. Prior to Construction 5. 5 Years Following Construction	Member Agency

Mitigation Measure 3.5.14

The following measures will be implemented to avoid or reduce impacts to heritage or other significant trees:

1. Prior to the commencement of construction activities, trees necessary to remove or at risk of being damaged will be identified.

2. A certified arborist will inventory these trees, with the results of the inventory providing species, size (diameter at breast height, or *dbh*), and number of protected trees. Also, in consultation with the appropriate County, the arborist will determine if any are heritage or landmark trees.

3. If any protected trees are identified that will be potentially removed or damaged by construction of the proposed project, design changes will be implemented where feasible to avoid the impact.

4. Any protected trees that are removed will be replaced per applicable City and County tree protection ordinances. Foliage protectors (cages and tree shelters) will be installed to protect the planted trees from wildlife browse. The planted trees will be monitored as required by the ordinance, or regularly during a minimum two-year establishment period and maintenance during the plant establishment period will include irrigation. After the establishment period, the native tree plantings are typically capable of survival and growth without supplemental irrigation.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Identify trees at risk or trees to be removed. 2. Inventory trees. 3. Consult with counties to determine if any identified trees are landmark trees. 4. Replace removed trees. 5. Monitor replacement trees.	1. Incorporate recommendations into contract specifications. 2. Record results in inspection report. 3. Record results in inspection report. 4. Comply with City and County Tree ordinances. 5. Comply with City and County Tree ordinances; sign-off on inspection report/ and or MMRP.	1. Certified Arborist/ Contractor 2. Certified Arborist 3. Member Agency 4. Member Agency 5. Member Agency/ Certified Arborist	1. Prior to Construction 2. Prior to Construction 3. Prior to Construction 4. After Construction is Completed 5. Minimum of two years following completion of construction	Member Agency

Land Use and Agricultural Resources

Impact 3.6.3: Impact to Farmland

Construction activities associated with the project could temporarily affect the agricultural use of important farmland.

Mitigation Measure 3.6.1

To support the continued productive use of Important Farmlands in the project area, the appropriate Member Agency shall ensure that the following measures are taken, during construction of the project:

- Replace soils over pipelines in a manner that will minimize any negative impacts on crop productivity. The surface and subsurface soil layers will be stockpiled separately and returned to their appropriate locations in the soil profile.
- To avoid over-compaction of the top layers of soil, monitor pre-construction soil densities and return the surface soil (approximately the top 3 feet) to within 5 percent of original density.
- Where necessary, the top soil layers will be ripped to achieve the appropriate soil density. Ripping may also be used in areas where vehicle and equipment traffic have compacted the top soil layers, such as the construction staging areas.
- Avoid working or traveling on wet soil to minimize compaction and loss of soil structure. Before construction begins, geotechnical testing will be done to determine the moisture content limit above which work should not occur. Where working or driving on wet soil cannot be avoided, roadways will be capped with spoils that will be removed at the end of construction and/or ripped and amended with organic material as needed.
- Remove all construction-related debris from the soil surface. This will prevent rock, gravel, and construction debris from interfering with agricultural activities.
- Perform soil density monitoring during backfill and ripping to minimize excessive compaction and minimize effects on future agricultural land use.
- Remove topsoil before excavating in fields. Return it to top of fields to avoid detrimental inversion of soil profiles.
- Control compaction to minimize changes to lateral groundwater flow which could affect both irrigation and internal drainage.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Replace soils over pipelines in a manner that will minimize any negative impacts on crop productivity. Stockpile surface and subsurface soil layers separately and return them to their appropriate locations in the soil profile. 2. Monitor pre-construction soil densities and return the surface soil (approximately the top 3 feet) to within 5 percent of original density. 3. Where necessary, rip the top soil layers to achieve the appropriate soil density. 4. Conduct geotechnical testing to determine the moisture content limit above which work should not occur. Where working or driving on wet soil cannot be avoided, roadways will be capped with spoils that will be removed at the end of construction and/or ripped and amended with organic material as needed. 5. Remove all construction-related debris from the soil surface. 6. Perform soil density monitoring during backfill and ripping. 7. Remove topsoil before excavating in fields. Return it to top of fields to avoid detrimental inversion of soil profiles. 8. Control compaction to minimize changes to lateral groundwater flow.	1. Incorporate procedure into construction specifications. 2. Incorporate procedure into construction specifications. 3. Incorporate procedure into construction specifications. 4. Incorporate procedure into construction specifications. 5. Incorporate procedure into construction specifications. 6. Incorporate procedure into construction specifications. 7. Incorporate procedure into construction specifications. 8. Incorporate procedure into construction specifications.	1. Contractor/ Member Agency 2. Member Agency 3. Member Agency 4. Member Agency 5. Member Agency 6. Member Agency 7. Member Agency 8. Member Agency	1. Prior to Construction/ During Construction 2. Prior to Construction/ During Construction 3. Prior to Construction/ During Construction 4. Prior to Construction/ During Construction 5. Prior to Construction/ During Construction 6. Prior to Construction/ During Construction 7. Prior to Construction/ During Construction 8. Prior to Construction/ During Construction	Member Agency

Transportation and Traffic

Impact 3.7.1: Temporary Congestion and Delays

Project construction activities could adversely affect traffic and transportation conditions in the project area.

Mitigation Measure 3.7.1a

The appropriate Member Agency for each project component shall obtain and comply with local road encroachment permits for roads that are affected by construction activities.

The *Work Area Protection and Traffic Control Manual* includes requirements to ensure safe maintenance of traffic flow through or around the construction work zone, and safe access of police, fire, and other rescue vehicles (CJUTCC, 1996). In addition, the Traffic Management Plan (subject to local jurisdiction review and approval) required by **Mitigation Measure 3.7.1b**, below, would direct how traffic flow is safely maintained during project construction.

Mitigation Measure 3.7.1b

The construction contractor for each project component shall prepare and implement a Traffic Control/Traffic Management Plan subject to approval by the appropriate local jurisdiction prior to construction. The plan shall:

- Identify hours of construction (between 8:00 AM and 7:00 PM; no construction shall be permitted between 10:00 PM and 7:00 AM);
- Identify hours for deliveries (Monday – Friday, 9:00 AM to 3:30 PM, or other hours if approved by the appropriate local jurisdiction);
- Include a discussion of haul routes, limits on the length of open trench, work area delineation, traffic control and flagging;
- Identify all access and parking restriction, pavement markings and signage requirements (e.g., speed limit, temporary loading zones);
- Layout a plan for notifications and a process for communication with affected residents and businesses prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints;
- Include a plan to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities. All roads shall remain passable to emergency service vehicles at all times;

- Include a plan to coordinate all construction activities with the appropriate local school district at least two months in advance. The school district shall be notified of the timing, location, and duration of construction activities. Coordinate with the appropriate local school district to identify peak circulation periods at schools along the alignment(s) (i.e., the arrival and departure of students), and require their contractor to avoid construction and lane closures during those periods. The construction contractor for each project component shall be required to maintain vehicle, pedestrian, and school bus service during construction through inclusion of such provisions in the construction contract. The assignment of temporary crossing guards at designated intersections may be needed to enhance pedestrian safety during project construction;

- Include the requirement that all open trenches be covered with metal plates at the end of each workday to accommodate traffic and access; and

- Specify the street restoration requirements pursuant to agreements with the local jurisdictions.

Mitigation Measure 3.7.1c

The appropriate Member Agency for each project component shall identify all roadway locations where special construction techniques (e.g., horizontal boring, directional drilling or night construction) will be used to minimize impacts to traffic flow.

Mitigation Measure 3.7.1d

The appropriate Member Agency for each project component shall develop circulation and detour plans to minimize impact to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.

Mitigation Measure 3.7.1e

The appropriate Member Agency for each project component shall encourage construction crews to park at staging areas to limit lane closures in the public right-of-way.

Mitigation Measure 3.7.1f

The appropriate Member Agency for each project component shall consult with the appropriate public transit service providers at least one month prior to construction to coordinate bus stop relocations (as necessary) and to reduce potential interruption of transit service.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Obtain local road encroachment permits for roads that are affected by construction activities.	1. Incorporate permit regulations into contract specifications.	1. Member Agency 2. Member Agency 3. Member Agency 4. Contractor/ Member Agency	1. Prior to Construction 2. Prior to and During Construction	Member Agency

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
2. Implement a traffic control plan which includes the following measures such as identifying hours of construction and deliveries; identifying access and parking restriction, pavement markings and signage requirements; and planning for notifications; coordinating all construction activities with emergency service providers; 3. Identify all roadway locations where special construction techniques (e.g., horizontal boring, directional drilling or night construction) will be used to minimize impacts to traffic flow. 4. Develop circulation and detour plans to minimize impact to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone. 5. Encourage construction crews to park at staging areas to limit lane closures in the public right-of-way. 6. Consult with the appropriate public transit service providers at least one month prior to construction to coordinate bus stop relocations (as necessary) and to reduce potential interruption of transit service.	2. Incorporate traffic control plan measures into contract specifications. 3. Incorporate techniques into contract specifications. 4. Incorporate plans into contract specifications. 5. Incorporate parking restrictions into contract specifications. 6. Incorporate transit service notification into contract specifications.	5. Member Agency 6. Contractor	3. Prior to and During Construction 4. Prior to and During Construction 5. During Construction 6. Prior to Construction	

Impact 3.7.2: Temporary Disruption to Access

Project construction activity would temporarily disrupt circulation patterns near sensitive land uses (schools, hospitals, fire stations, police stations, and other emergency providers).

Mitigation Measure 3.7.2a

Pipeline construction near schools shall occur when school is not in session (i.e., summer or holiday breaks). If this is not feasible, a minimum of two months prior to project construction, the appropriate Member Agency for each project component shall coordinate with the appropriate local school district to identify peak circulation periods at schools along the alignment(s) (i.e., the arrival and departure of students), and require their contractor to avoid construction and lane closures during those periods.

Mitigation Measure 3.7.2b

A minimum of two months prior to project construction, the appropriate Member Agency for each project component shall coordinate with the appropriate local school district to identify alternatives to their Safe Routes to School program, alternatives for the school busing routes and stop locations, and other circulation provisions, as part of the Traffic Control/Traffic Management Plan (see **Mitigation Measure 3.7.1a**).

Mitigation Measure 3.7.2c

Implement **Mitigation Measure 3.7.1b**.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Restrict pipeline construction near schools to times when school is not in session (i.e., summer or holiday breaks). If this is not feasible, coordinate with the appropriate local school district a minimum of two months prior to project construction to identify peak circulation periods at schools along the alignment(s) (i.e., the arrival and departure of students), and require the contractor to avoid construction and lane closures during those periods.	1. Incorporate restrictions for schools into construction schedule and construction specifications.	1. Member Agency	1. Prior to and During Construction	Member Agency

Impact 3.7.3: Temporary Disruption to Access

Project construction activity would have temporary effects on alternative transportation or alternative transportation facilities.

Mitigation Measure 3.7.3

Implement **Mitigation Measure 3.7.1f**.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.7.1f.	1. Incorporate transit service notification into contract specifications.	1. Member Agency	1. Prior to Construction	Member Agency

Impact 3.7.4: Temporary Displacement of Parking

Project construction activity would temporarily create parking demand for construction workers and construction vehicles, and displace parking spaces.

Mitigation Measure 3.7.4

Implement **Mitigation Measure 3.7.1e**.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.7.1e.	1. Incorporate parking restrictions into contract specifications.	1. Contractor	1. During Construction	Member Agency

Impact 3.7.5: Temporary Potential Traffic Hazards

Project construction activity would temporarily increase the potential for accidents on project roadways.

Mitigation Measure 3.7.5

Implement **Mitigation Measure 3.7.1b** through **3.7.1f**.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.7.1b. 2. Implement Mitigation Measure 3.7.1c. 3. Implement Mitigation Measure 3.7.1d. 4. Implement Mitigation Measure 3.7.1e. 5. Implement Mitigation Measure 3.7.1f.	1. Incorporate traffic control plan measures into contract specifications. 2. Incorporate techniques into contract specifications 3. Incorporate plans into contract specifications. 4. Incorporate parking restrictions into contract specifications. 5. Incorporate transit service notification into contract specifications.	1. Member Agency 2. Contractor/ Member Agency 3. Member Agency 4. Contractor 5. Member Agency	1. Prior to and During Construction 2. Prior to and During Construction 3. Prior to and During Construction 4. During Construction 5. Prior to Construction	Member Agency

Impact 3.7.6: Road Wear

Project construction activity would increase wear and tear on the designated haul routes used by construction vehicles to access the project work sites.

Mitigation Measure 3.7.6

Roads damaged by construction shall be repaired to a structural condition equal to that which existed prior to construction activity as per conditions of the encroachment permit (see **Mitigation Measure 3.7.1a**).

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Obtain local road encroachment permits for roads that are affected by construction activities.	1. Incorporate permit regulations into contract specifications.	1. Member Agency	1. Prior to Construction	Member Agency

Air Quality

Impact 3.8.1: Temporary Construction Emissions of Criteria Pollutants

Project construction activities could result in substantial short-term criteria pollutant emissions.

Mitigation Measure 3.8.1a: Construction Fugitive Dust Control Plan

The appropriate Member Agency shall require its contractor(s) to implement a dust control plan that shall include the following dust control procedures during construction as required by the BAAQMD:

- Water all active construction areas at least twice daily, taking into consideration temperature and wind conditions.
- Cover all trucks hauling soil, sand, and other loose materials *or* require trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways, consistent with **Mitigation Measure 3.1.2**, Erosion Control.
- Replant vegetation in disturbed areas as quickly as possible.

Mitigation Measure 3.8.1b: Construction Exhaust Emissions Control Plan

The appropriate Member Agency shall require its contractor(s) to implement an exhaust emissions control plan that shall include the following controls and practices:

- On road vehicles with a gross vehicular weight rating of 10,000 pounds or greater shall not idle for longer than five minutes at any location as required by Section 2485 of Title 13,

Division 3, Chapter 10, Article 1 of the California Code of Regulations. This restriction does not apply when vehicles remain motionless during traffic or when vehicles are queuing.

- Off road equipment engines shall not idle for longer than five minutes per Section 2449(d)(3) of Title 13, Division 3, Chapter 9, Article 4.8 of the California Code of Regulations. All vehicle operators shall receive a written idling policy to inform them of idling restrictions. The policy shall list exceptions to this rule that include the following: idling when queuing; idling to verify that the vehicle is in safe operating condition; idling for testing, servicing, repairing or diagnostic purposes; idling necessary to accomplish work for which the vehicle was designed (such as operating a crane); idling required to bring the machine to operating temperature as specified by the manufacturer; and idling necessary to ensure safe operation of the vehicle.

- Off road engines greater than 50 horsepower shall, at a minimum, meet Tier 2 emissions standards. When available, higher Tier engines shall be utilized.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement BAAQMD Basic Dust Control Measures. 2. Include exhaust controls in contractor specifications. 3. Implement exhaust control measures.	1. Incorporate in contract specifications and Sign-off on inspection report and/ or MMRP that measures are being implemented. 2. Review contract specifications. 3. Sign-off on inspection report and/ or MMRP.	1. Contractor 2. Contractor 3. Contractor	1. During Construction 2. Design and prior to construction 3. During Construction	Member Agency

Impact 3.8.4: Long term Increase in GHG Emissions

Project construction and operation would increase GHG emissions potentially interfering with the State's GHG reduction goals.

Mitigation Measure 3.8.1b: Construction Exhaust Emissions Control Plan

(see p. 3.8-22 above).

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.8.1b.	1. Review contract specifications.	1. Contractor	1. Design and During Construction	Member Agency

Noise

Impact 3.9.1: Temporary construction noise

Construction activity would violate standards established in the local general plans or noise ordinances, and/or would adversely affect nearby sensitive receptors.

Mitigation Measure 3.9.1

The appropriate Member Agency shall develop and implement a Construction Noise Reduction Plan that requires, at a minimum, the following:

- The contractor shall locate all stationary noise-generating equipment, including hammer bore and drill rigs, as far as possible from nearby noise-sensitive receptors. Stationary noise sources located within 500 feet of noise-sensitive receptors shall be equipped with noise reducing engine housings, and the line of sight between such sources and nearby sensitive receptors shall be blocked by portable acoustic barriers.

- The contractor shall assure that construction equipment with internal combustion engines have sound control devices at least as effective as those provided by the original equipment manufacturer. No equipment shall be permitted to have an un-muffled exhaust.

- All construction activities within unincorporated Sonoma County shall be limited to between the hours of 7 a.m. and 6 p.m. on weekdays and between 9 a.m. and 5 p.m. on Saturdays.

- Residences and other sensitive receptors within 200 feet of a construction area shall be notified of the construction schedule in writing, at least two weeks prior to the commencement of construction activities. This notice shall indicate the allowable hours of construction activities as specified by the applicable local jurisdiction or as defined by this mitigation measure. The construction contractor shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed on construction site fences and entrances and included in the construction schedule notification sent to nearby residences and sensitive receptors.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Develop and Implement Construction Noise Reduction Plan. 2. Appropriately locate all stationary noise-generating equipment. 3. Use appropriate equipment.	1. Incorporate into contract specifications; sign-of on inspection report and/or MMRP. 2. Incorporate into contract specifications; sign-of on inspection report and/or MMRP.	1. Contractor 2. Contractor 3. Contractor 4. Contractor 5. Contractor 6. Contractor	1. Prior to and During Construction 2. During Construction 3. During Construction 4. During Construction	Member Agency

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
4. Limit construction activities to specified work hours. 5. Notify sensitive receptors of construction schedule. 6. Designate a noise disturbance coordinator.	3. Incorporate into contract specifications; sign-of on inspection report and/or MMRP. 4. Sign-of on inspection report and/or MMRP. 5. Sign-of on inspection report and/or MMRP. 6. Incorporate into contract specifications; sign-of on inspection report and/or MMRP.		5. At least two weeks Prior to Construction 6. Prior to Construction	

Impact 3.9.2: Temporary vibration impacts

Construction activities could expose sensitive receptors to excessive ground-borne vibration levels.

Mitigation Measure 3.9.2

The appropriate Member Agency will implement the following measure:

> The construction contractor shall use a trenchless technology (e.g., horizontal directional drill, lateral drilling, etc.) other than jack and bore when there are structures within 100 feet of the proposed activities. If the construction contractor provides the Member Agency with acceptable documentation indicating that alternative trenchless technology is not feasible for the crossing, the contractor shall develop and implement a Construction Vibration Mitigation Plan to minimize construction vibration damage using all reasonable and feasible means available, including siting the jack and bore as far a possible from all nearby structures. The plan shall provide a procedure for establishing thresholds and limiting vibration values for potentially affected structures based on an assessment of each structure's ability to withstand the loads and displacements due to construction vibrations. The plan should also include the development of a vibration monitoring plan to be implemented during construction of particular crossing.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement trenchless technology, when appropriate. 2. Develop a Construction Vibration Mitigation Plan in the event that trenchless technology is not feasible.	1. Incorporate into contract specifications. 2. Incorporate into contract specifications.	1. Contractor 2. Contractor	1. During Construction 2. Prior to and During Construction	Member Agency

Impact 3.9.3: Permanent Increases to Ambient Noise Levels

Operational activities could permanently generate noise levels above existing ambient levels in the vicinity of sensitive receptor locations.

Mitigation Measure 3.9.3

The appropriate Member Agency shall implement the following measure:

> All new pump stations shall be located within enclosed structures with adequate setback and screening to achieve acceptable regulatory noise standards for industrial uses as well as to achieve acceptable levels at the property lines of nearby residences, as determine by the applicable local jurisdiction. Noise enclosures shall be designed to reduce equipment noise levels by at least 20 dBA.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Enclose pump stations with screens.	1. Incorporate into construction specifications; Sign-off inspection report and/or MMRP.	1. Contractor/ Member Agency	1. Design and Prior to Construction	Member Agency

Hazards and Hazardous Materials

Impact 3.10.1: Exposure to Hazardous Materials

Project construction could expose workers and the public to hazardous materials that could be present in the soil or shallow groundwater encountered during excavation.

Mitigation Measure 3.10.1a

Project contract specifications shall require that, in the event that evidence of potential soil contamination such as soil discoloration, noxious odors, debris, or buried storage containers, is encountered during construction, the contractor will have a contingency plan for sampling and analysis of potentially hazardous substances, including use of a photoionization detector. The required handling, storage, and disposal methods shall depend on the types and concentrations of chemicals identified in the soil. Any site investigations or remediation shall comply with applicable laws and will coordinate with the appropriate regulatory agencies,

Mitigation Measure 3.10.1b

If unknown USTs are discovered during construction, the UST, associated piping, and impacted soil shall be removed by a licensed and experienced UST removal contractor. The UST and contaminated soil shall be removed in compliance with applicable county and state requirements governing UST removal.

Mitigation Measure 3.10.1c

Prepare a project-specific Health and Safety Plan that would apply to excavation activities. The plan shall establish policies and procedures to protect workers and the public from potential hazards posed by hazardous materials. The plan shall be prepared according to federal and California OSHA regulations and submitted to the appropriate agency with jurisdiction prior to beginning site activities.

Mitigation Measure 3.10.1d

Project contract specifications shall include a Dust Abatement Program to minimize potential public health impacts associated with exposure to contaminants in soil dust.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Require that in the event that evidence of potential soil contamination such as soil discoloration, noxious odors, debris, or buried storage containers, is encountered during construction, the contractor will have a contingency plan for sampling and analysis of potentially hazardous substances, including use of a photoionization detector. Any site investigations or remediation shall comply with applicable laws and will coordinate with the appropriate regulatory agencies. 2. Remove USTs, associated piping, and any impacted soil discovered during construction. 3. Prepare a project-specific Health and Safety Plan that would apply to excavation activities. The plan shall be prepared according to federal and California OSHA regulations and submitted to the appropriate agency with jurisdiction prior to beginning site activities. 4. Implement a Dust Abatement Program.	1. Incorporate requirement into construction specifications. 2. Incorporate requirement into construction specifications; Comply with applicable county and state requirements governing UST removal. 3. Incorporate plan requirements into construction specifications. 4. Incorporate program requirements into construction specifications.	1. Contractor/ Member Agency 2. Licensed UST Removal Contractor/ Member Agency 3. Member Agency 4. Member Agency	1. During Construction 2. During Construction 3. Prior to and During Construction 4. Prior to and During Construction	Member Agency

Impact 3.10.2: Release of Hazardous Materials During Construction

Project construction could increase the potential for accidental release of hazardous materials.

Mitigation Measure 3.10.2a

Consistent with the SWPPP requirements, the construction contractor shall be required to implement BMPs for handling hazardous materials onsite. The use of construction BMPs will minimize any adverse effects on groundwater and soils, and will include, but not limited to, the following:

- Follow manufacturers' recommendations and regulatory requirements for use, storage, and disposal of chemical products and hazardous materials used in construction;
- Spill control and countermeasures, including employee spill prevention/response training;
- Avoid overtopping construction equipment fuel gas tanks;
- During routine maintenance of construction equipment, properly contain and remove grease and oils; and
- Properly dispose of discarded containers of fuels and other chemicals.

Mitigation Measure 3.10.2b

The contractor shall follow the provisions of California Code of Regulations, Title 8, Sections 5163 through 5167 for General Industry Safety Orders to protect the project area from being contaminated by the accidental release of any hazardous materials and/or wastes. The local CUPA agency will be contacted for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling.

Mitigation Measure 3.10.2c

Oil and other solvents used during maintenance of construction equipment shall be recycled or disposed of in accordance with applicable regulatory requirements. All hazardous materials shall be transported handled, and disposed of in accordance with applicable regulatory requirements.

Mitigation Measure 3.10.2d

In the event of an accidental release of hazardous materials during construction, containment and clean up shall occur in accordance with applicable regulatory requirements.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement BMPs for handling hazardous materials onsite. 2. Protect the project area from being contaminated by the accidental release of any hazardous materials and/or wastes. Contact the local CUPA agency for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling. 3. Recycle or dispose of oil and other solvents used during maintenance of construction equipment in accordance with applicable regulatory requirements. 4. Contain and clean up accidental releases of hazardous materials.	1. Incorporate BMPs into construction specifications; sign-off on inspection report and/or MMRP. 2. Incorporate provisions into the construction specifications. Comply with the provisions of California Code of Regulations, Title 8, Sections 5163 through 5167 for General Industry Safety Orders. Coordinate with CUPA agency and comply with their recommendations. 3. Incorporate requirement into construction specifications; Comply with regulatory requirements. 4. Incorporate requirement into construction specifications; Comply with regulatory requirements.	1. Contractor/ Member Agency 2. Member Agency 3. Member Agency 4. Member Agency	1. During Construction 2. Prior to construction 3. During construction 4. During Construction	Member Agency

Impact 3.10.4: Wildland Fire Hazard

Construction activities in grassland areas could have the potential to expose people or equipment to risk of loss, injury, or death involving wildland fires.

Mitigation Measure 3.10.4a

For applicable Member Agencies, in consultation with local fire agencies, a Fire Safety Plan will be developed for each of the service areas associated with the project. The Fire Safety Plan(s) will describe various potential scenarios and action plans in the event of a fire.

Mitigation Measure 3.10.4b

For applicable Member Agencies, during project construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall

be equipped with a spark arrestor in good working order. All vehicles and crews working at the project site(s) will have access to functional fire extinguishers at all times. In addition, construction crews will be required to have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Develop Fire Safety Plan. 2. Clear all staging areas, welding areas, or areas slated for development using spark-producing equipment of dried vegetation or other material that could ignite. Equip construction equipment a spark arrestor in good working order. All vehicles and crews working at the project site(s) will have access to functional fire extinguishers at all times. Require construction crews to have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.	1. Incorporate Fire Safety Plan into construction specifications. 2. Incorporate measures into construction specifications; sign-off on inspection report and/or MMRP.	1. Member Agency 2. Contractor/ Member Agency	1. Prior to Construction 2. During Construction	Member Agency

Public Services and Utilities

Impact 3.11.1: Temporary Effect on Response Times for Emergency Service Providers

Project construction activities could temporarily affect response times for emergency service providers.

Mitigation Measure 3.11.1

The Member Agencies will coordinate with local emergency service providers in its service area to inform them of the proposed construction activities and schedule, and provide temporary alternate access routes around construction areas as necessary.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Coordinate with local emergency providers to inform them of the proposed construction activities and schedule. 2. Provide alternate routes for emergency service providers around construction areas as necessary.	1. Incorporate into contract specifications 2. Sign-off on inspection report and/or MMRP	1. Member Agency/ Contractor 2. Contractor	1. Prior to construction 2. During Construction	Member Agency

Impact 3.11.2: Short-term Police and Fire Assistance

Project construction activities could require short-term police and fire protection services to assist in traffic management or in the event of an accident.

Mitigation Measure 3.11.2

Public service providers shall provide, upon request, a copy of the Traffic Control Plan to the related police and fire agencies for their review prior to construction. The appropriate Member Agency shall provide 72-hour notice to the local service providers prior to construction of individual pipeline segments. Discussion on the Traffic Control Plan is provided in Section 3.7, Traffic and Circulation.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Provide Traffic Control Plan to local emergency service providers for review. 2. Provide notice to local fire and police agencies to notify them of construction of individual segments of pipeline.	1. Sign-off on inspection report and/or MMRP. 2. Sign-off on inspection report and/or MMRP.	1. Contractor 2. Member Agency/ Contractor	1. Prior to Construction 2. 72 hours Prior to Construction at each site.	Member Agency

Impact 3.11.3: Temporary Accidental Disruption to Utility Services

Project construction could result in temporary planned or accidental disruption to utility services.

Mitigation Measure 3.11.3

The Member Agencies will identify utilities along the proposed pipeline routes and project sites prior to construction and implement the following measures:

a. Utility excavation or encroachment permits shall be obtained as required from the appropriate agencies. These permits include measures to minimize utility disruption. The service provider and its contractors shall comply with permit conditions regarding utility disruption.

b. Utility locations shall be verified through the use of the Underground Service Alert services and/or field survey (potholing).

c. As necessary, detailed specifications shall be prepared as part of the design plans to include procedures for the excavation, support, and fill of areas around utility cables and pipes. All affected utility services shall be notified of construction plans and schedule. Arrangements shall be made with these entities regarding protection, relocation, or temporary disconnection of services.

d. In areas where the pipeline would traverse parallel to underground utility lines within five feet, the project applicant shall employ special construction techniques, such as trench wall-support measures to guard against trench wall failure and possible resulting loss of structural support for the excavated areas.

e. Residents and businesses in the project corridor shall be notified of any planned utility service disruption two to four days in advance, in conformance with county and state standards.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Acquire utility excavation or encroachment permits. 2. Verify utility locations using Underground Service Alert services and/or field survey. 3. Include procedures for excavation, support, and fill of areas around utility cables and pipes. 4. Coordinate with affected local utility services to notify them of the proposed construction activities and schedule. 5. Implement special construction techniques, as needed. 6. Notify residents and businesses in advance to inform them of proposed construction activities and schedule.	1. Comply with regulatory permit, Copies of approved permits will be available onsite. 2. Incorporate into contract specifications. 3. Incorporate in design and contract specifications 4. Incorporate into contract specifications; sign-off on inspection report and/or MMRP 5. Sign-off on inspection report and/or MMRP 6. Sign-off on inspection report and/or MMRP	1. Contractor/ Member Agency 2. Contactor 3. Contractor 4. Contractor/ Member Agency 5. Contractor 6. Contractor/ Member Agency	1. Prior to Construction 2. Prior to Construction 3. Prior to Construction 4. Prior to Construction 5. During Construction 6. Prior to Construction	Member Agency

Cultural Resources

Impact 3.12.1: Impact to Cultural Resources/Archaeological Sites

Project construction could affect existing cultural resources or uncover unknown and/or buried archaeological materials in areas of high prehistoric archaeological sensitivity.

Mitigation Measure 3.12.1

The appropriate Member Agency will incorporate the following measures:

Mitigation Measure 3.12.1a: Prepare a Cultural Resources Monitoring Plan. Prior to authorization to proceed, or issuance of permits, the applicant shall prepare and submit a cultural resources monitoring plan to the appropriate jurisdiction for review and approval. Monitoring shall be required for all surface alteration and subsurface excavation work including trenching, boring, grading, use of staging areas and access roads, and driving vehicles and equipment within all areas delineated as sensitive for cultural resources. A qualified professional archaeologist (cultural resources monitor) that is approved by each Member Agency in consultation with all affected jurisdictions shall prepare the plan. The plan shall address (but not be limited to) the following issues:

- Training program for all construction and field workers involved in site disturbance;
- Person(s) responsible for conducting monitoring activities, including Native American monitors;
- How the monitoring shall be conducted and the required format and content of monitoring reports, including any necessary archaeological re-survey of the final pipeline alignment (including the need to conduct shovel-test units or auger samples to identify deposits in advance of construction), assessment, designation and mapping of the sensitive cultural resource areas on final project maps, assessment and survey of any previously unsurveyed areas;
- Person(s) responsible for overseeing and directing the monitors;
- Schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports;
- Procedures and construction methods to avoid sensitive cultural resource areas (i.e. boring conduit underneath recorded or discovered cultural resource site);
- Clear delineation and fencing of sensitive cultural resource areas requiring monitoring;
- Physical monitoring boundaries (e.g., 200-foot radius of a known site);
- Protocol for notifications in case of encountering of cultural resources, as well as methods of dealing with the encountered resources (e.g., collection, identification, curation);

- Methods to ensure security of cultural resources sites;
- Protocol for notifying local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction.

Mitigation Measure 3.12.1b: Archaeological and Native American Monitoring. If an intact archaeological deposit is encountered, all soil disturbing activities in the vicinity of the deposit shall cease until the deposit is evaluated. The appropriate Member Agency, as necessary, shall retain the services of a Native American monitor and a qualified archaeological consultant that has expertise in California prehistory to monitor ground-disturbing within areas designated as being sensitive for buried cultural resources. The archaeological monitor shall immediately notify the appropriate Member Agency of the encountered archaeological deposit. The monitors shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological deposit, present the findings of this assessment to NBWRA and the appropriate Member Agency. During the course of the monitoring, the archaeologist may adjust the frequency—from continuous to intermittent—of the monitoring based on the conditions and professional judgment regarding the potential to impact resources.

If a Member Agency, in consultation with the monitors, determines that a significant archaeological resource is present within their jurisdiction and that the resource could be adversely affected by the NBWRP, the Member Agency shall:

- Re-design the NBWRP to avoid any adverse effect on the significant archaeological resource; *or*,
- Implement an archaeological data recovery program (ADRP) (unless the archaeologist determines that the archaeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible). If the circumstances warrant an archaeological data recovery program, an ADRP shall be conducted. The project archaeologist and the Member Agency shall meet and consult to determine the scope of the ADRP. The archaeologist shall prepare a draft ADRP that shall be submitted to the appropriate Member Agency for review and approval. The ADRP shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ADRP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, shall be limited to the portions of the historic property that could be adversely affected by NBWRP. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical.

Mitigation Measure 3.12.1c: Cultural Resources Assessment for Staging Areas

When locations for staging are defined the areas of potential effect should be subject to a cultural resources investigation that includes, at a minimum:

- An updated records search at the Northwest Information Center;

- An intensive survey of all areas within the lots;
- A report disseminating the results of this research; and,
- Recommendations for additional cultural resources work necessary to mitigate any adverse impacts to recorded and/or undiscovered cultural resources.

Mitigation Measure 3.12.1d: Inadvertent Discoveries

If discovery is made of items of historical or archaeological interest, the contractor shall immediately cease all work activities in the area (within approximately 100 feet) of discovery. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. After cessation of excavation the contractor shall immediately contact the NBWRA and appropriate Member Agency. The contractor shall not resume work until authorization is received from the appropriate Member Agency.

- In the event of unanticipated discovery of archaeological indicators during construction, the Member Agency shall retain the services of a qualified professional archaeologist to evaluate the significance of the items prior to resuming any activities that could impact the site.
- In the case of an unanticipated archaeological discovery, if it is determined that the find is unique under NHPA and/or potentially eligible for listing in the National Register, and the site cannot be avoided, appropriate Member Agency shall provide a research design and excavation plan, prepared by an archaeologist, outlining recovery of the resource, analysis, and reporting of the find. The research design and excavation plan shall be submitted to NBWRA and appropriate Member Agency and approved by the appropriate Member Agency prior to construction being resumed.

Mitigation Measure 3.12.1e: Project-level Cultural Resources Assessment

When project-level plans are completed for the Basic System; the Partially Connected System; and the Fully Connected System, NBWRA the appropriate Member Agency will conduct a cultural resources investigation for the APE that includes, at a minimum:

- An updated records search at the NWIC;
- An intensive cultural resources survey of the APE;
- A report disseminating the results of this research; and,
- Recommendations for additional cultural resources work necessary to mitigate any adverse impacts to recorded and/or undiscovered cultural resources.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Prepare Cultural Resources Monitoring Plan. 2. Monitor predetermined culturally sensitive areas; cease work if cultural artifacts or humans remains are discovered. 3. Conduct cultural resources investigation for staging areas. 4. Cease work within 100 feet of a find and inform the appropriate Member Agency in the event of an inadvertent discovery of cultural resources. 5. Conduct a project-level Cultural Resources Assessment for program-level areas.	1. Incorporate into contract specifications. 2. Incorporate into contract specifications, and make recommendations for design modification if necessary. 3. Incorporate into contract specifications. 4. Copies of DPR 422 or 523 shall be retained in Member Agency files; incorporate recommendations for design modification if necessary. 5. Incorporate into contract specifications, and make recommendations for design modification if necessary.	1. Qualified Archaeologist 2. Qualified Archaeologist and Native American Monitor 3. Qualified Archaeologist 4. Contractor/ Member Agency 5. Qualified Archaeologist	1. Prior to Construction 2. During Construction 3. Prior to Construction 4. During Construction 5. Following Project Design; Prior to Construction	Member Agency

Impact 3.12.2: Discovery of Human Remains

Project construction could result in damage to previously unidentified human remains.

Mitigation Measure 3.12.2: Discovery of Human Remains

If potential human remains are encountered, the appropriate Member Agency shall halt work in the vicinity of the find and contact the county coroner in accordance with Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5. If the coroner determines the remains are Native American, the coroner shall contact the NAHC. As provided in Public Resources Code Section 5097.98, the NAHC shall identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent makes recommendations for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. In the event of discovery of human remains, cease work and contact county coroner and NAHC if necessary.	1. Sign-off on inspection report and/ or MMRP; coordinate with NAHC.	1. Contractor/ Member Agency	1. During Construction	Member Agency

Recreation

Impact 3.13.1: Temporary Disturbance

Project construction could result in short-term disturbance adjacent to recreational facilities.

Mitigation Measure 3.13.1a

The appropriate Member Agency shall coordinate with the appropriate local and regional agencies to identify detour routes for the bikeways and trails during construction where feasible, as part of the Traffic Control/Traffic Management Plan (see **Measure 3.11.1a**).

Mitigation Measure 3.13.1b

Implement Mitigation Measures 3.8-1a through 3.8.1b, and Mitigation Measures 3.9-1 through 3.9-3.

Mitigation Measure 3.13.2

Before beginning construction, the contractor will develop, in consultation with the appropriate representative(s) of the affected park's managing agency, a plan indicating how public access to the park will be maintained during construction. If needed, flaggers will be stationed near the construction activity area to direct and assist members of the public around the activity areas while maintaining access to the parks.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Identify and establish detours for disrupted bikeways and trails. 2. Maintain public access; station flaggers to assist in directing public. 3. Implement Mitigation Measure 3.8.1a. 4. Implement Mitigation Measure 3.8.1b. 5. Implement Mitigation Measure 3.9.1.	1. Coordination with local and regional agencies. 2. Coordination with local and regional agencies. 3. Incorporate in contract specifications and Sign-off on inspection report and/ or MMRP that measures are being implemented.	1. Contractor/ Member Agency 2. Contractor/ Member Agency 3. Contractor 4. Contractor 5. Contractor 6. Contractor 7. Contractor/ Member Agency	1. Prior to and During Construction 2. Prior to and During Construction 3. Design and Prior to Construction 4. Design and prior to Construction 5. Prior to and During Construction 6. Prior to and During Construction	Member Agency

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
6. Implement Mitigation Measure 3.9.2. 7. Implement Mitigation Measure 3.9.3.	4. Review contract specifications. 5. Incorporate into contract specifications; sign-of on inspection report and/or MMRP. 6. Incorporate into contract specifications. 7. Incorporate into contract specifications; sign-of on inspection report and/or MMRP.		7. Design and Prior to Construction	

Aesthetics

Impact 3.14.1: Temporary Impact to Scenic Vistas

NBWRP construction activities could temporarily affect scenic vistas or corridors in the NBWRP area.

Mitigation Measure 3.14.1a

Following construction activities, disturbed areas shall be restored to baseline conditions, including repaving roadways, replanting trees, and/or reseeding with a native seed mix typical of the immediately surrounding area.

Mitigation Measure 3.14.1b

Berms around constructed reservoirs shall be vegetated with native seed mixes to soften the visual effect of the reservoirs from adjacent roadways.

Mitigation Measure 3.14-1c

Design elements shall be incorporated to enhance visual integration of the booster pump station and distribution pump station with their surroundings. Proposed facilities shall be painted low-glare earth-tone colors that blend with the surrounding terrain. Highly reflective building materials and/or finishes shall not be used in the designs for proposed facilities.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Restore disturbed areas to baseline conditions by repaving, replanting, and reseeding land. 2. Incorporate buffers, integrate natural design elements, and use appropriate building materials.	1. Inspect final site conditions after construction and verify its condition is it equivalent to that prior to construction. Incorporated into construction specifications. 2. Review construction specifications.	1. Contractor/ Member Agency 2. Contractor	1. After Construction 2. Design and During Construction	Member Agency

Impact 3.14.2: Impact to Views Along Scenic Roadways

Implementation of NBWRP could affect views along eligible or designated Caltrans Scenic Highways, or locally-defined scenic routes.

Mitigation Measures

The appropriate Member Agency will implement the following measures:

Mitigation Measure 3.14.1a
Mitigation Measure 3.14.1b

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.14.1a. 2. Implement Mitigation Measure 3.14.1b.	1. Review construction specifications. 2. Review construction specifications and landscape design.	1. Contractor/ Member Agency 2. Contractor	1. After Construction 2. Design and During Construction	Member Agency

Impact 3.14.3: Source of Light or Glare

NBWRP components could introduce new sources of light and glare on the project sites.

Mitigation Measures

The appropriate Member Agency will implement the following measures:

Mitigation Measure 3.14.3a: The exterior lighting installed around the operational and capacity storage reservoirs, distribution pump station, storage tanks, and booster pump station shall be of a minimum standard required to ensure safe visibility. Lighting also shall be shielded and directed downward to minimize impacts of light and glare.

Measure 3.14.3b: All exterior lighting is directed downward and oriented to insure that limited light source is directly visible from neighboring residential areas. If necessary, landscaping would be provided around proposed facilities. The vegetation would be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Incorporate shielded, downward-oriented, low intensity light sources in design. 2. Plant vegetation to act as a natural buffer around areas that require lighting.	1. Review construction specifications. 2. Review construction specifications.	1. Member Agency 2. Member Agency	1. During Design 2. During Design and After Construction	Member Agency

Impact 3.14.4: Long-term Impact to Aesthetic Character

Development of the proposed facilities, particularly pump stations and storage reservoirs, would permanently alter the aesthetic character of the project area.

Mitigation Measures

The appropriate Member Agency will implement the following measures:

Mitigation Measure 3.14.4a: After construction of any facility that is above grade and visible to sensitive receptors, visual screening and vegetation measures will be implemented to reduce impacts to scenic views. Trees or other suitable vegetation along the fenceline of the facility should be incorporated to reduce the industrial appearance of the structures. Similarly, berms for new storage ponds or pond reconfiguration will be re-vegetated to reduce the barren appearance of the berms.

Mitigation Measure 3.14.4b: Dark colored, non-reflective building materials should be used for project components that cause potentially significant impact from glare to visual resources.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Install screens and vegetation, and trees along fenceline; seed reconfigured berms with native grasses. 2. Integrate natural design elements, and use appropriate building materials.	1. Review construction specifications and landscape design. 2. Review construction specifications.	1. Contractor/ Member Agency 2. Contractor/ Member Agency	1. Design and After Construction 2. Design and During Construction	Member Agency

Cumulative Impacts

Impact 4.1. Construction-related Cumulative Impacts.

Concurrent construction of several projects within the Sonoma, Napa, and Marin County areas could result in cumulative short-term impacts associated with construction activities. If implemented at the same time as other construction projects, construction of facilities under all three of the alternatives could contribute to potential short-term cumulative effects associated with erosion, cultural resource disturbance, disturbance of adjacent land uses, traffic disruption, dust generation, construction noise, aesthetics, air quality, biological resources, hazardous materials, water quality, public services and utilities. However, construction-related impacts would not result in long term alteration of the environment, and could be mitigated to less than significant levels through the use of mitigation measures identified throughout Chapter 3.

Mitigation Measure

The appropriate Member Agency will implement the following measure:

> **Mitigation Measure 4.1a:** Member Agencies shall coordinate construction activities along selected alignments to identify overlapping pipeline routes, project areas, and construction schedules. To the extent feasible, construction activities shall be coordinated to consolidate the occurrence of short-term construction-related impacts.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Coordinate construction activities to identify overlapping routes and construction schedules.	1. Incorporate into contract specifications.	1. Member Agency	1. Prior to Construction	Member Agency

Impact 4.5

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area, and other water and wastewater infrastructure projects, could result in cumulative long-term impacts to biological resources.

Mitigation Measures

Mitigation Measures in Section 3.5.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement Mitigation Measure 3.5.1. 2. Implement Mitigation Measure 3.5.2. 3. Implement Mitigation Measure 3.5.3. 4. Implement Mitigation Measure 3.5.5. 5. Implement Mitigation Measure 3.5.6. 6. Implement Mitigation Measure 3.5.9.	1. Comply with regulatory permit; Sign-off on inspection report and/ or MMRP. 2. Comply with regulatory permit; Sign-off on inspection report and/ or MMRP. 3. Comply with regulatory permit; Sign-off on inspection report and/ or MMRP. 4. Comply with regulatory permit; Sign-off on inspection report and/ or MMRP. 5. Comply with regulatory permit; Sign-off on inspection report and/ or MMRP. 6. Incorporate into contract specifications.	1. Member Agency/ Contractor 2. Member Agency/ Contractor 3. Member Agency/ Contractor 4. Member Agency/ Contractor 5. Member Agency/ Contractor 6. Contractor/ Qualified Biologist	1. Prior to and During Construction 2. Prior to and During Construction 3. Prior to and During Construction 4. Prior to and During Construction 5. Prior to and During Construction 6. Prior to and During Construction	Member Agency

Growth Inducement and Secondary Effects of Growth

Impact 5.1. Direct and Indirect Impacts on Growth.

NBWRP would provide recycled water for urban, agricultural, and environmental uses, and as such, would contribute to the provision of adequate water supply to support a level of growth that is consistent with the amount planned and approved within the General Plans of Marin, Sonoma and Napa Counties. No appreciable growth in population or employment would occur as a direct result of construction or operation of the proposed facilities. However, development under the General Plans accommodated by the proposed project would result in secondary environmental effects, which include effects that would be significant and unavoidable. No additional impacts are anticipated beyond those identified in General Plan EIRs for each County.

Mitigation Measure 5.1a

In order to maintain consistency with the Napa County General Plan, Napa County and Napa SD will approve the MST Local Options 1 and/or 2. This will provide approximately 530 AFY of recycled water that would be available for the existing users in the MST area. Trunk facilities may be sized to accommodate service of up to 1,400 AFY of service to existing agricultural irrigators only. Any expansion of service beyond the 1,400 AFY or provision of service to new

land uses would be subject to approval by the County Planning Department and the Napa County Board of Supervisors.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Conduct additional land use and CEQA analysis prior to service to un-irrigated parcels or beyond above 1400 AFY.	1. CEQA approval process.	1. Napa County and Napa SD	1. Prior to Project Approval	Napa County/ Napa SD

CHAPTER 12
List of EIR/EIS Preparers

A list of persons who prepared various sections of the EIR/EIS, prepared significant background materials, or participated to a significant degree in preparing the EIR/EIS is presented below.

North Bay Water Reuse Authority (NBWRA)

Sonoma County Water Agency (CEQA Lead Agency)

Marc Bautista	Project Manager
Kevin Booker	Project Engineer
Chuck Weir	Program Manager (NBWRA)

Bureau of Reclamation (NEPA Lead Agency)

David White	Program and Project Manager
Douglas Kleinsmith	Environmental Specialist

NBWRA Member Agencies

Las Gallinas Valley Sanitary District

Marc Williams	General Manager

Novato Sanitary District

Beverly James	Manager-Engineer

Sonoma Valley County Sanitation District

See Sonoma County Water Agency above.

Napa Sanitation District (Member Agency)

Michael Abramson	General Manager
Tim Healy	Assistant General Manager/ District Engineer

NBWRA Supporting Agencies

North Marin Water District

Chris Degabriel	General Manager
Drew McIntyre	Chief Engineer

Napa County

Hillary Gitelman	Director of Conservation, Development, and Planning
Felix Riesenberg	Principal Water Resources Engineer

TABLE 12-1
LIST OF PREPARERS

Name	Qualifications	Participation
ESA		
James E. O'Toole	B.A., Geography; over 15 years experience in water and wastewater infrastructure projects, and environmental documentation for CEQA and NEPA	Project Manager
Asavari Devadiga	M.S., Environmental Science and Policy, M.S., Environmental Pollution Control Technology, B.S., Microbiology; 7 years experience in wastewater engineering and environmental pollution control technology	Deputy Project Manager; Growth Inducement; Alternatives; Climate Change
Cherie Kolin	B.S., Ecology and Systematic Biology; 2 years of experience	Project Coordinator; Public Services and Utilities; Recreation; Irreversible Commitment of Resources; Relationship of Uses and Productivity; Consultation
Katie Blank	B.S., Environmental Management and Protection; 1 year of experience	Aesthetics; Alternatives; Cumulative Impacts
Chris Rogers	B.S., Biology; 20 years of experience in permitting, regulatory compliance, wetland ecology and restoration planning, habitat assessments, endangered species evaluations, restoration and mitigation planning	Biological Resources
Natasha Dvorak	B.A., Biology; 3 years of experience	Biological Resources
Paul Garcia	B.S., Environmental Policy Analysis and Planning; 5 years of experience	Land Use and Agricultural Resources
Eric Schniewind	B.A., Geological Sciences; 13 years of experience as a geologist, hydrogeologist, and hydrologist	Geology, Soils and Seismicity
Heidi Koenig	B.A., Anthropology, M.A., Cultural Resources; Registered Professional Archaeologist; 8 years of experience specializing in California archaeology	Cultural and Paleontological Resources; Indian Trust Assets
Jack Hutchison	M.Eng., Transportation Engineering, B.S., Civil Engineering; 30 years of experience in a wide range of transportation analyses, from planning level impact analyses to operations and design evaluations	Traffic and Transportation
Matthew Fagundes	B.S., Environmental Studies, M.A., Physical Geography; 12 years of experience evaluating air quality and noise impacts to the environment	Air Quality; Noise
Nicole Yeto	B.A., Geography and Environmental Studies; AERMOD Air Dispersion Modeling Workshop; 2 years of experience	Air Quality; Noise
Lisa Bautista	20 years of experience	Technical Editing
Wes McCullough	B.A., Geography with GIS emphasis; 5 years of experience	GIS
Ron Teitel, Perry Jung	B.A., Geography; 20 years of experience B.F.A., Design; 20 years of experience	Graphics
Anthony Padilla, Ricardo Ramirez	14 years of experience 7 years of experience	Production
Victor Mullins	M.L..S., Library and Information Science, B.A., English Literature; 8 years of experience	References; Administrative Record

TABLE 12-1 (Continued)
LIST OF PREPARERS

Name	Qualifications	Participation
CDM		
Andria Loutsch, AICP	B.S., Economics; 12 years experience	Project Manager, Oversight and Review
Chris Park, AICP, LEED AP	B.S., Natural Resources Planning & Interpretation, Masters in City and Regional Planning; 3 years of experience	Water Quality
James LaVelle, Ph.D.	B.A., Biological Sciences, M.A., Biology, M.S., Industrial and Environmental Toxicology, Ph.D., Biology; 24 years of experience	Water Quality Reviewer
W. Don Vandertulip, P.E.	B.S., Civil Engineering, M.S., Sanitary Engineering; 35 years of experience	Water Quality Reviewer
Jennifer Jones	B.A. Biology, M.S. Environmental Science; 15 years of experience	Hazardous Materials
Henry Boucher, P.E., BCEE, AICP	Sc.B., Materials Engineering, M.S., Environmental Engineering; 35 years of experience	Hazardous Materials Reviewer
Carolyn Buckman, P.E.	B.S., Environmental Engineering, B.S., Planning, M.Eng., Environmental Engineering; 10 years of experience	Surface Hydrology
Michael Savage, P.E., D. WRE.	B.S., Soil and Water Science, M.S., Civil Engineering; 30 years of experience	Surface Hydrology Reviewer
Stacy Porter	B.A., Environmental Studies; 4 years experience	Groundwater Resources
Brian Heywood, P.E.	B.S., Civil Engineering, M.S., Civil Engineering; 11 years of experience	Groundwater Resources Reviewer
Gina Veronese	B.S., Agricultural Economics, M.S., Agricultural and Resource Economics; 7 years of experience	Socioeconomics, Environmental Justice
Anthony Skidmore, AICP	B.A., Sociology, M.P.A., Public Administration; 25 years of experience	Socioeconomics, Environmental Justice Reviewer
Mike Podlech, Aquatic Biologist		
Mike Podlech	M.S., Aquatic Ecology, B.S., Environmental Science, 15 years of experience	Aquatic Biology
Rauch Communication Consultants Inc.		
Martin Rauch	B.A., History; 18 years of experience	Public Outreach
Muelrath Public Affairs		
Taylor McDaniel	M.A., Ecology, Culture and Sustainable Community; 10 years of experience	Public Outreach

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APPENDIX 1

NOP Comments

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

Notice of Preparation

July 25, 2008

JUL 30 2008

To: Reviewing Agencies

Re: North Bay Recycled Water Program
SCH# 2008072096

Attached for your review and comment is the Notice of Preparation (NOP) for the North Bay Recycled Water Program draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Marc Bautista
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

for: Scott Morgan
Project Analyst, State Clearinghouse

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY

JUL 30 2008

File: 70-0-14 North San Pablo Bay
Orig. Filed Restoration and Reuse Project

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

JUL 30 2008

SCH# 2008072096
Project Title North Bay Recycled Water Program
Lead Agency Sonoma County Water Agency

Type NOP Notice of Preparation

Description The North Bay Reuse Authority is proposing the North Bay Water Recycling Program (formerly known as North San Pablo Restoration and Reuse Project) to increase regional use of recycled water in the North San Pablo Bay region. The proposed Program will include construction and operation of treatment facilities, distribution pipelines, pump stations and storage facilities to provide recycled water in the region, which encompasses approximately 318 square miles within Marin, Sonoma and Napa counties. Three alternatives for recycled water use are being considered, with the level of facility improvements dependent upon the level of recycled water use. Pipeline and pumping facilities would be installed within or along existing roadways. Treatment and storage facilities would be located at or near existing wastewater treatment plants.

Lead Agency Contact

Name Marc Bautista
Agency Sonoma County Water Agency
Phone (707) 547-1923 **Fax**
email
Address P.O. Box 11628
City Santa Rosa **State** CA **Zip** 95406-1628

Project Location

County Sonoma, Marin, Napa
City
Region
Cross Streets
Lat / Long
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways 101
Airports
Railways
Waterways Several, North San Pablo Bay
Schools
Land Use Residential/Agricultural/Commercial

Project Issues

Reviewing Agencies Resources Agency; Department of Conservation; Department of Parks and Recreation; San Francisco Bay Conservation and Development Commission; Department of Water Resources; Department of Fish and Game, Region 3; Native American Heritage Commission; California Highway Patrol; Caltrans, District 4; State Water Resources Control Board, Division of Loans and Grants; State Water Resources Control Board, Division of Water Quality; State Water Resources Control Board, Division of Water Rights

Date Received 07/25/2008 **Start of Review** 07/25/2008 **End of Review** 08/25/2008

Note: Blanks in data fields result from insufficient information provided

NOP Distribution List

County: Sonoma, Marin, Napa SCH# 2008072030

Resources Agency

- [x] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  David Johnson
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Gerald R. Zimmerman
- [x] **Dept. of Conservation**
  Sharon Howell
- [ ] **California Energy Commission**
  Dale Edwards
- [ ] **Cal Fire**
  Allen Robertson
- [ ] **Office of Historic Preservation**
  Wayne Donaldson
- [x] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **Central Valley Flood Protection Board**
  Mark Herald
- [x] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [x] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou
- [ ] _____
  Conservancy

sh and Game

- [ ] **Depart. of Fish & Game**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Game Region 1**
  Donald Koch
- [ ] **Fish & Game Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Game Region 2**
  Jeff Drongesen
- [x] **Fish & Game Region 3**
  Robert Floerke
- [ ] **Fish & Game Region 4**
  Julie Vance
- [ ] **Fish & Game Region 5**
  Don Chadwick
  Habitat Conservation Program
- [ ] **Fish & Game Region 6**
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M**
  Gabrina Getchel
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] **Depart. of General Services**
  Public School Construction
- [ ] **Dept. of General Services**
  Robert Sleppy
  Environmental Services Section
- [ ] **Dept. of Public Health**
  Veronica Malloy
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Debby Eddy
- [ ] **Office of Emergency Services**
  Dennis Castrillo
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Ken Lewis
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [ ] **State Lands Commission**
  Marina Brand
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- [ ] **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- [ ] **Caltrans - Planning**
  Terri Pencovic
- [x] **California Highway Patrol**
  Shirley Kelly
  Office of Special Projects
- [ ] **Housing & Community Development**
  Lisa Nichols
  Housing Policy Division

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Jeff Pulverman
- [x] **Caltrans, District 4**
  Tim Sable
- [ ] **Caltrans, District 5**
  David Murray
- [ ] **Caltrans, District 6**
  Moses Stites
- [ ] **Caltrans, District 7**
  Vin Kumar
- [ ] **Caltrans, District 8**
  Dan Kopulsky
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Ryan P. Chamberlain

Cal EPA

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
  - [ ] Transportation Projects
    Ravi Ramalingam
  - [ ] Industrial Projects
    Mike Tollstrup
- [ ] **California Integrated Waste Management Board**
  Sue O'Leary
- [x] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [x] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [x] **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights
- [ ] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____

Last Updated on 07/24/2008

JUL 30 2008

State of California – The Resources Agency
ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

August 1, 2008

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
AUG 4 2008

File: 70-0-7 Memorandum of Understanding (MOU) for North Bay Water Reuse Authority

Mr. Marc Bautista
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

Dear Mr. Bautista:

Subject: North Bay Water Recycling Program, Counties of Marin, Napa, and Sonoma

The Department of Fish and Game (DFG) has reviewed the documents provided for the subject project, and we have the following comments.

Please provide a complete assessment (including but not limited to type, quantity and locations) of the habitats, flora and fauna within and adjacent to the project area, including endangered, threatened, and locally unique species and sensitive habitats. The assessment should include the reasonably foreseeable direct and indirect changes (temporary and permanent) that may occur with implementation of the project. Rare, threatened and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, Section 15380). DFG recommended survey and monitoring protocols and guidelines are available at http://www.dfg.ca.gov/wildlife/species/survey_monitor.html.

For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. Issuance of an LSAA is subject to the CEQA. DFG, as a responsible agency under CEQA, will consider the CEQA document for the project. The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the agreement. To obtain information about the LSAA notification process, please access our website at http://www.dfg.ca.gov/habcon/1600/index.html; or to request a notification package, contact the Lake and Streambed Alteration Program at (707) 944-5520.

If you have any questions, please contact Mr. Dan Wilson, Environmental Scientist, at (707) 944-5534; or Mr. Richard Fitzgerald, Coastal Habitat Conservation Supervisor, at (707) 944-5568.

Sincerely,

for

Charles Armor
Regional Manager
Bay Delta Region

cc: State Clearinghouse

Conserving California's Wildlife Since 1870

State of California • The Resources Agency
Arnold Schwarzenegger, *Governor*
DEPARTMENT OF PARKS AND RECREATION
Ruth G. Coleman, *Director*
Diablo Vista District
845 Casa Grande Road
Petaluma, California 94954

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
AUG 2 5 2008
File: 70-0-14 North San Pablo Bay Restoration and Reuse Project

Sonoma County Water Agency
ATTN: Mark Bautista
P.O. Box 11628
Santa Rosa, CA 95406-1628

August 21, 2008

RE: North Bay Water Recycling Program Notice Of Preparation

It has come to our attention that the North Bay Water Reuse Authority has prepared a Notice Of Preparation (NOP) for a recycled water line through the City of Sonoma. On February 9, 2007 State Park staff met with Sonoma County Water Agency staff, Kent Gylfe and Amy Mai, regarding a proposed water line through Sonoma State Historic Park (SHP). At this February 9th meeting State Parks expressed its concerns over the recycled water line traversing through Sonoma SHP (note attached letter to Kent Gylfe and Amy Mai).

Although the North Bay Water Reuse Authorities NOP does not specifically state an option for the water line running through Sonoma SHP, State Parks does not endorse any option that would require the use of park lands. Any recycled water line option that would need park lands would be inconsistent with the park unit general plan, cultural landscape plan, and with the national register of historic places designation.

In reading the NOP, State Parks does support the SVRWP 2 option as described on page 18 of the NOP. Also, the NOP was issued to us from a source other than the State Clearinghouse, which is the normal notification process. As of the date of this letter we have not received any notification from the State Clearinghouse of the NBWRA North Bay Water Recycling Program NOP.

We thank you for the opportunity to comment on the North Bay Water Recycling Program NOP If you have any questions please contact me anytime.

Sincerely,

Stephen Bachman
Associate Park & Recreation Specialist
(707)769-5652 x212

State of California • The Resources Agency
Arnold Schwarzenegger, *Governor*
DEPARTMENT OF PARKS AND RECREATION
Ruth G. Coleman, *Director*
Diablo Vista District
845 Casa Grande Road
Petaluma, California 94954

Sonoma County Water Agency
ATTN: Kent Gylfe & Amy Mai
P.O. Box 11628
Santa Rosa, CA 95406

RE: Sonoma Valley Water Recycled Project Line Alignment Through
State Park Ownership

Thank you for meeting with State Park staff at the Sonoma Barracks on February 9, 2007. As per our discussions, State Park staff has concerns over potential significant impacts to park resources relating to the Recycled Water Line (RWL) alignment through State Park ownership. These concerns are outlined below.

In looking through our 2005 environmental documents, we did locate a Notice of Preparation of Environmental Impact Report mailing addressed to State Parks from the Sonoma County Water Agency (SCWA) dated September 19, 2005. This was a copy of a letter that SCWA issued to the State Clearinghouse. State Parks received this letter on September 21, 2005 and provided written comment to Amy Mai on September 28, 2005 (see attachment). We have looked through all of the 2005 and 2006 environmental documents in our files and found that State Parks did not receive a copy of the draft EIR. As a result, we unfortunately missed a critical opportunity to comment on the project.

As per our February 9 discussions at the Sonoma Barracks, staff has the following concerns: The proposed RWL location through the Vallejo Field paralleling the bike trail may disturb significant cultural resources within the park unit. Impacts to recreation along the bike trail may also be significant during construction. Noise generated during construction may be significant within the park unit as well. Finally, we are concerned about impacts to jurisdictional wetlands.

Based on these concerns State Parks feels the most viable option is to locate the RWL along 1st Street West to East Spain Street and continue the line west along East Spain Street. Should State Parks ever need irrigation in the Vallejo Fields we would be able to tie in to the RWL on East Spain Street.

Thank you for the opportunity to comment on the Sonoma Valley Recycled Water Line Project. If you have any questions please contact me anytime.

Sincerely,

Stephen Bachman
Associate Park & Recreation Specialist
California Department of Parks and Recreation
845 Casa Grande Road
Petaluma, CA 94954
(707)769-5652 x212

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 622-5491
FAX (510) 286-5559
TTY 711

Flex your power!
Be energy efficient!

AUG 2 5 2008

File: 70-0-14 North San Pablo Bay
Restoration and Reuse Project

August 25, 2008

BAG0020
SCH#2008072096

Mr. Marc Bautista
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406

Received By
AUG 2 5 2008
Sonoma County Water Agency

Dear Mr. Bautista:

North Bay Water Reuse Authority (NBWRA) North Bay Water Recycling Program – Notice of Preparation

Thank you for including the California Department of Transportation (Department) in the environmental review process for the North Bay Water Recycling Program. The following comments are based on the Notice of Preparation.

As lead agency, the NBWRA is responsible for all project mitigations, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, and implementation responsibilities as well as lead agency monitoring should be fully discussed for all proposed mitigation measures and the project's traffic mitigation fees should be specifically identified in the Environmental Impact Report/Environmental Impact Statement.

Any required roadway improvements should be completed prior to issuance of project occupancy permits. An encroachment permit is required when the project involves work in the State's right of way (ROW). Therefore, we strongly recommend that the lead agency ensure resolution of the Department's concerns prior to submittal of the encroachment permit application; see the end of this letter for more information regarding the encroachment permit process.

Traffic Impact Study (TIS)

The Department is primarily concerned with impacts to the State Highway System and the proposed project may be adjacent to State facilities. Please ensure that the environmental analysis evaluates the traffic impacts on State facilities by applying the following criteria to determine if a TIS is warranted:

1. The project will generate over 100 peak hour trips assigned to a State highway facility.

2. The project will generate between 50 to 100 peak hour trips assigned to a State highway facility, and the affected highway facilities are experiencing noticeable delay; approaching unstable traffic flow (level of service (LOS) "C" or "D") conditions.

3. The project will generate between 1 to 49 peak hour trips assigned to a State highway facility, and the affected highway facilities are experiencing significant delay; unstable or forced traffic flow (LOS "E" or "F") conditions.

We recommend using the Department's Guide for the Preparation of Traffic Impact Studies for determining which scenarios and methodologies to use in the analysis. It is available at the following website address:
http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

Erosion Control
Discharges entering the State's ROW should comply with the Department's statewide NPDES permit with the State Water Resource Control Board (construction as well as permanent runoff.)

Cultural Resources
If construction activities are proposed within the State's ROW, the Department requires documented results of a current archaeological record search from the Northwest Information Center (NIC) of the California Historical Resources Information System before an encroachment permit can be issued. Current record searches must be no more than five years old.

The Department requires the records search, and if warranted, a cultural resource study by a qualified, professional archaeologist, to ensure compliance with NEPA (if there is federal action on the project), CEQA, Section 5024.5 of the California Public Resources Code (for state-owned historic resources) and Volume 2 of the Department's Environmental Handbook (Caltrans Standard Environmental Reference (SER), available at http://www.dot.ca.gov/hq/env/index.htm).

Work subject to these requirements includes, but is not limited to: lane widening, channelization, auxiliary lanes, and/or modification of existing features such as slopes, drainage features, curbs, sidewalks and driveways within or adjacent to State ROW.

Permits
Transportation permits - Project work that requires movement of oversized or excessive load vehicles on State roadways requires a transportation permit that is issued by the Department. To apply, a completed transportation permit application with the determined specific route(s) for the shipper to follow from origin to destination must be submitted to the address below.

Office of Transportation Permits
California DOT Headquarters
P.O. Box 942874
Sacramento, CA 94274-0001

See the following website link for more information:
http://www.dot.ca.gov/hq/traffops/permits/.

Encroachment permits - Additionally, any work or traffic control within the State's ROW requires an encroachment permit that is issued by the Department. Traffic-related mitigation measures will be incorporated into the construction plans during the encroachment permit process. See the following website link for more information:
http://www.dot.ca.gov/hq/traffops/developserv/permits/

To apply for an encroachment permit, submit a completed encroachment permit application, environmental documentation, and five (5) sets of plans which clearly indicate State ROW to the address at the top of this letterhead, marked ATTN: Michael Condie, Mail Stop #5E.

Should you have any questions regarding this letter, please call Lisa Courington of my staff at (510) 286-5505.

Sincerely,

Lisa Carboni

LISA CARBONI
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

Marin Audubon Society

P.O. Box 599 | Mill Valley, CA 94942-0599 | marinaudubon.org

August 22, 2008

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY

AUG 26 2008

File: 70-0-14 North San Pablo Bay Restoration and Reuse Project

Marc Bautista
Sonoma Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

RE: NORTH BAY WATER RECYCLING PROGRAM NOP

Dear Mr. Bautista:

The Marin Audubon Society appreciates the opportunity to submit scoping comments on the North Bay Recycling Program proposed by the North Bay Water Reuse Authority. The stated purpose of the project is to "increase the regional use of recycled water." and, according to the notice the project would encompass an approximately 318 square mile-area and would include installation of facilities such as new pipelines, pump stations, additional storage, and upgrades to existing treatment capabilities. In addition to the No Project Alternative, Three Alternatives are described: Basic, Partially Connected and Fully Connected Systems.

The EIR should include a thorough discussion of the project components for each alternative, identify potential adverse impacts and recommended mitigations, including:

- A map showing the precise location for each facility,
- As explanation of what the water would be used for, identifying whether it is an existing or new use.
- A description of where the water storage ponds, reservoirs or user ponds would be constructed. Would existing habitat be destroyed to construct these facilities? What impacts would these facilities have on existing habitat and nearby habitats?
- A complete description of the existing conditions at each location where a facility is proposed
- An explanation of what habitats would be lost, modified or otherwise impacted by construction of facilities. Would any existing native habitats be changed to a different habitat type? If so, describe.
- A discuss the impact of any change in habitat type on wildlife that use areas currently.
- A discussion of wetlands or other aquatic habitats that are proposed to be created or the addition of treated water to streams or wetlands. If any of these used are proposed, the DEIR should identify and evaluate potential water quality impacts, including impacts of nutrient loads, and modifications to existing habitat
- A discussion of other potential water quality impacts. Is there a potential for accumulation of heavy metals, because treatment does not remove all metals, in habitat and/or storage areas?

- Describe all habitats that would be impacted (streams, wetlands, grassland, tree loss, etc.) and how they would be impacted.

Alternative 1:
Are there enough potential users to accommodate the quantity of water projected to be created?
Where is the reservoir to be rehabilitated in the southern portion of the Novato Service Area and what impacts would its rehabilitation create?
How would it be decided to move from one alternative to another.
Describe the use for the water in the Napa saltpond project.

Additional specific questions for Alternative 2:
Describe all habitats that would be impacted by construction of the additional pipelines.
It appears that the Las Gallinas Sanitary District line would have to be placed through diked baylands.
Where are the existing reservoirs that would be rehabilitated in the Novato SD area located?
What are "potential user" ponds and where are they located?
For expanded agricultural irrigation, what is the potential for build up of heavy metals in the soils?

Additional questions for Alternative 3:
Describe the route and additional adverse impacts that could occur from construction of additional pipeline.
Where would the storage be located to extend service to the Sears Point Area?

The **cumulative** impacts, particularly the cumulative biological impacts, of all alternatives should be discussed.
Evaluate the **growth inducing impacts** of the project. Would increasing recycled water to any area result in increased development pressure in any area? The Port Sonoma Area is of particular concern.

Thank you for responding to our questions.

Sincerely,

Barbara Salzman, Chair
Conservation Committee

STATE OF CALIFORNIA Arnold Schwarzenegger, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

July 31, 2008

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
AUG 5 2008

Marc Bautista
Sonoma County Water Agency
P.O.Box 11628
Santa Rosa, CA 95406-1628

File: 70-0-7 Memorandum of Understanding (MOU) for North Bay Water Reuse Authority

RE: SCH#2008072096 North Bay Recycled Water Program: Sonoma, Marin and Napa Counties.

Dear Mr. Bautista:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Preparation (NOP) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **USGS 7.5 minute quadrangle name, township, range and section required.**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached.**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Katy Sanchez

Katy Sanchez
Program Analyst

CC: State Clearinghouse

Native American Contacts
Sonoma, Marin and Napa Counties
July 31, 2008

The Federated Indians of Graton Rancheria
Gene Buvelot
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park , CA 94928 — Southern Pomo
coastmiwok@aol.com
(415) 883-9215 Home

Lytton Rancheria Band of Pomo Indians
Margie Mejia, Chairperson
1300 N. Dutton, Suite A — Pomo
Santa Rosa , CA 95401
lyttonband@aol.com
(707) 575-5917
(707) 575-6974 - Fax

Cloverdale Rancheria of Pomo Indians
Patricia Hermosillo, Chairperson
555 South Cloverdale Blvd., Suite A — Pomo
Cloverdale , CA 95425
clvrdler61@aol.com
(707) 894-5775
909-894-5727

Rumsey Indian Rancheria of Wintun
Marshall McKay, Chairperson
P.O. Box 18 — Wintun (Patwin)
Brooks , CA 95606
(530) 796-3400
(530) 796-2143 Fax

Wintun Environmental Protection Agency
P.O. Box 1839 — Wintun (Patwin)
Williams , CA 95987
corwepa@hotmail.com
(530) 473-3318
(530) 473-3319
(530) 473-3320 - Fax

Stewarts Point Rancheria
Eric Wilder, Chairperson
3535 Industrial Dr., Suite B2 — Pomo
Santa Rosa , CA 95403
tribalofc@stewartspointrancher
(707) 591-0580 - Voice
(707) 591-0583 - Fax

Dry Creek Rancheria of Pomo Indians
Harvey Hopkins, Chairperson
P.O. Box 607 — Pomo
Geyserville , CA 95441
drycreek@sonic.net
(707) 473-2178

Ya-Ka-Ama
6215 Eastside Road — Pomo
Forestville , CA 95436 — Coast Miwok
(707) 887-1541 — Wappo

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Native American Contacts
Sonoma, Marin and Napa Counties
July 31, 2008

The Federated Indians of Graton Rancheria
Greg Sarris, Chairperson
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park , CA 94928 — Southern Pomo
coastmiwok@aol.com
707-566-2288
707-566-2291 - fax

Cortina Band of Indians
Elaine Patterson, Chairperson
PO Box 1630 — Wintun / Patwin
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax

Suscol Intertribal Council
Charlie Toledo
PO Box 5386
Napa , CA 94581
suscol@i-cafe.net
707 256-3561
707 256-0815 Fax

Dawn S. Getchell
P.O. Box 53 — Coast Miwok
Jenner , CA 95450 — Pomo
(707) 865-2248

Kathleen Smith
1778 Sunnyvale Avenue — Pomo
Walnut Creek , CA 94596 — Coast Miwok
(925) 938-6323

Cortina Band of Indians
Thelma Brafford, Tribal Administrator
P.O. Box 1630 — Wintun/Patwin
Williams , CA 95987
(530) 473-3274
(530) 437-3301 FAX

Mishewal-Wappo Tribe of Alexander Valley
Earl Couey, Cultural Resources Manager
P.O. Box 5676 — Wappo
Santa Rosa , CA 95402
ecouey.1@netzero.net
707-478-7895

Lytton Band of Pomo Indians
Lisa Miller, Tribal Administrator
1300 N. Dutton, Suite A — Pomo
Santa Rosa , CA 95401
lyttonband@aol.com
(707) 575-5917
(707) 575-6974 FAX

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Native American Contacts
Sonoma, Marin and Napa Counties
July 31, 2008

Stewarts Point Rancheria THPO
Reno Franklin, Tribal Historic Perservation Officer
3535 Industrial Dr., Suite B2 Pomo
Santa Rosa , CA 95403
reno@stewartspointrancheria.
(707) 591-0580 EXT 105
(707) 591-0583 FAX

Kesner Flores
PO Box 1047 Wintun / Patwin
Wheatland , CA 95692
calnagpra@hotmail.com
925-586-8919

Stewarts Point Rancheria
Lynne Rosselli, Environmental Planning Department
3535 Industrial Dr., Suite B2 Pomo
Santa Rosa , CA 95403
lynne@stewartspointrancheria
(707) 591-0580 ext107
(707) 591-0583 FAX

Cortina Band of Indians
Karen Flores, Vice Chairperson
PO Box 1630 Wintun / Patwin
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax

Lytton Band of Pomo Indians
Cathy Lopez, Vice Chairperson
1300 N. Dutton, Suite A Pomo
Santa Rosa , CA 95401
cathylopez@aol.com
(707) 575-5917
Fax: (707) 575-6974

The Federated Indians of Graton Rancheria
Frank Ross
440 Apt. N Alameda del Prado Coast Miwok
Novato , CA 94949 Southern Pomo
miwokone@yahoo.com
(415) 269-6075

Lytton Band of Pomo Indians
Environmental Planner
1300 N. Dutton, Suite A Pomo
Santa Rosa , CA 95401
(707) 575-5917
(707) 575-6974 FAX

Rumsey Indian Rancheria of Wintun
Leland Kinter, Native Cultural Renewal Committee
P.O. Box 18 Wintun (Patwin)
Brooks , CA 95606
(530) 979-6346
(530) 796-3400 - office
(530) 796-2143 Fax

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Native American Contacts
Sonoma, Marin and Napa Counties
July 31, 2008

Cloverdale Rancheria of Pomo Indians
Mario Hermosillo Jr., Tribal Environmental Planner
555 South Cloverdale Blvd., Suite A Pomo
Cloverdale , CA 95425
mhermosillo@cloverdalerancheria.com
(707) 894-5775
707-894-5727

Rumsey Indian Rancheria of Wintun
Cynthia Clarke, Native Cultural Renewal Committee
P.O. Box 18 Wintun (Patwin)
Brooks , CA 95606
(530) 796-3400 - office
(530) 796-2143 Fax

Mishewal-Wappo Tribe of Alexander Valley
Scott Gabaldon, Chairperson
PO Box 1794 Wappo
Middletown , CA 95461
sgdcinc@sbcglobal.net
707-494-9159

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Sonoma County Water Coalition
404 A Mendocino Avenue, Santa Rosa, CA 95404 SCWaterCoalition@comcast.net
707-575-5594

Senator Jeff Bingaman
Chairman
Senate Energy and Natural Resources Committee
304 Dirksen Senate Building
Washington, DC 20510

October 11, 2007

RE: S.1472 North Bay Water Reuse Program Act of 2007 Companion Bill, H.R.236

Dear Chairman Bingaman and Members of the Senate Energy and Natural Resources Committee,

The Sonoma County Water Coalition (SCWC) includes 32 organizations representing more than 25,000 citizens in Sonoma County, California. The unifying momentum behind this coalition is a shared concern for the water resources of Sonoma County.

We urge you to defeat this defective bill (S.1472 North Bay Water Reuse Program Act of 2007 Companion Bill, H.R.236) in its present form, and we offer our assistance in rewriting it in the next session to address our concerns.

SCWC has steadfastly worked since 2004 to get public policies in place to protect and restore our beleaguered water resources. This includes both the Russian River and the Eel River, which each provide home to three threatened species of federally listed salmonids, as well as overdrafted and declining groundwater basins throughout the county. Our county's primary public water provider, the Sonoma County Water Agency (SCWA), has recently been subject to California State Water Resources Control Board (SWRCB) mandatory 15% cutbacks in withdrawals from the Russian River to protect Fall-run Chinook in the Russian River. SWRCB has also asked SCWA to come up with plans that involve no increases in demands for water pumped from the Russian River to supply future growth.

The necessity to plan for the long term future of reliable water supplies in our region, while protecting and restoring our natural public trust resources, has required a shift in public policy. We are working hard with public policy makers, agricultural interests, and commercial and residential ratepayers to reduce demands for potable water, to maximize water efficiencies and conservation (saving energy and greenhouse gas emissions, too), as well as supporting appropriate reuse of highly treated wastewater within the SCWA service areas to displace potable water demands, and eliminate exports of SCWA water to other regions.

We are now seeing water planning that incorporates some of the best thinking in the nation, allowing at least one city (Petaluma) to plan for its next 20 years' growth with a zero-increment in potable water demand. This example follows the lead of other municipal water suppliers in California (including Los Angeles, East Bay Municipal Utility District and Marin Municipal Water District) which have proven that intelligent

use of all water resources is not only feasible, but a requisite tool for the arid West's future.

Unfortunately, our review of the North Bay Water Reuse Program Act of 2007 ("Project") S.1472 (Feinstein, Boxer) and H.R.236 (Thompson, Woolsey) brings us to strongly oppose this legislation.

The bill fails to set any priority that the recycled water be used to offset and reduce local potable water demands first. Instead, it provides for tens of thousands of acres of new and expanded agricultural irrigation using treated municipal wastewater derived from SCWA customers. While some of this wastewater is currently discharged into San Pablo Bay, reuse of the water to substantially reduce demands on the already overtaxed SCWA water supply system should come first.

The bill fails to set any limits on exporting water, or to mandate addressing the impacts of those withdrawals of water pumped from SCWA sources from the Russian and Eel Rivers and Sonoma county groundwater to regions outside the SCWA service area in both Sonoma and Napa counties, primarily in different watersheds.

The bill fails to provide limits on the quantities of water to be used for expanded agricultural irrigation and environmental restoration in the proposed Project areas.

The bill fails to provide limits on how far the pipelines and pumps may be built.

The bill fails to provide limits on future use of the pipelines, particularly the plumbing that would serve the Napa-Sonoma Marsh Restoration Project at the tail end of the Project pipeline.

The bill precedes any environmental evaluation, under NEPA or CEQA, of the Project and its impacts, benefits and deficiencies.

For instance, similar proposals (another SCWA-proposed Bureau of Reclamation project, the North Sonoma County Agricultural Reuse Project) for use of treated wastewater in the Dry Creek and Alexander Valleys regions of the Russian River for irrigation of premium vineyards has recently met with significant opposition by local ranchers who don't want treated wastewater used for application to their world-class grapes, soils or groundwater.

Since most all of the treated wastewater for the Project (except wastewater from the city of Napa) is derived from SCWA-supplied municipal contractors' treated wastewater, that water will not be available to offset new or existing potable water demands.

While these public wastewater plant operators and water contractors have shown interest in expanding the local reuse of recycled water, some have expressed concerns over the costs to independently finance the expansion of infrastructure that would be required to meet all of their current and projected needs. Rather than providing this assistance to these public agencies and their ratepayers to improve treatment and distribution within their service areas, this Project and Bill would take that water out of their service areas to

supply a large expansion of agricultural users, primarily grape growers in Sonoma and Napa valleys, in areas that are currently water-scarce.

Indeed, even the current final Draft Sonoma County General Plan states:
"Any consideration to export additional water resources place primary priority upon the benefit of and need for the water resources in Sonoma County and shall assure that water resources needed by urban, rural and agricultural water users in Sonoma County will not be exported outside the county." (Policy WR-5a)

SCWC supports this policy, and would add equivalent protections and priorities for water resources needed by the "dependent natural resources in Sonoma County" as well.

S.1472 and H.R.236 significantly violate this trust and important public policies, and is antithetical to our community's hard work to come to grips with our intertwined water and resource and population futures.

Thank you.

Sincerely,

Stephen Fuller-Rowell
Sonoma County Water Coalition

cc: Senator Feinstein, Senator Boxer, all members of the Senate Energy and Natural Resources Committee

Linda S. Adams
Secretary for Environmental Protection

State Water Resources Control Board

Division of Financial Assistance
1001 I Street, Sacramento, California 95814• (916) 341-5700
Mailing Address: P.O. Box 944212 • Sacramento, California 94244-2120
FAX (916) 341-5707 • http://www.waterboards.ca.gov

Arnold Schwarzenegger
Governor

AUG 1 9 2008

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY

AUG 2 5 2008

File: 70-0-14 North San Pablo Bay Restoration and Reuse Project

Mr. Marc Bautista
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

Dear Mr. Bautista:

NOTICE OF PREPARATION (NOP) FOR SONOMA COUNTY WATER AGENCY (AGENCY); NORTH BAY RECYCLED WATER PROGRAM (PROJECT); STATE CLEARINGHOUSE NO. 2008072096

Thank you for the opportunity to review the Agency's NOP. We understand that the Agency is pursuing funds from the Clean Water State Revolving Fund (SRF) Program to construct components of the Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information for the environmental document prepared for the Project.

Following the public review period of the Environmental Impact Report (EIR), please send us a copy of: (1) the draft and final EIR, (2) a resolution certifying the EIR, adopting the Mitigation Monitoring and Reporting Plan (MMRP), and making California Environmental Quality Act (CEQA) findings, including any Statement of Overriding Considerations for significant, adverse impacts that can not be fully mitigated or avoided, (3) all comments received during the review period and the Agency's responses to those comments, (4) the adopted MMRP, and (5) the Notice of Determination filed with the Governor's Office of Planning and Research for the Project. In addition, we would appreciate notices of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board.

The SRF Program is partially funded by the U.S. Environmental Protection Agency and requires additional "CEQA-Plus" environmental documentation and review. The State Water Board is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of an SRF funding commitment for the Project.

It is important to note that prior to an SRF funding commitment, projects are subject to provisions of the Federal Endangered Species Act and must obtain Section 7 clearance from the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS) for any potential effects to special status species. Please be advised that under the SRF Program, the State Water Board may consult with USFWS and/or NMFS regarding all federal special status species the Project has the potential to impact. The Agency will need to identify whether the Project will involve any direct effects from construction activities or indirect effects, such as growth inducement, that may affect federally listed threatened or endangered species that are known, or have a potential, to occur on-site, in the surrounding areas, or in the service area. Identify applicable conservation measures to reduce such effects.

AUG 19 2008

cc: State Clearinghouse
(Re: SCH# 2008072096)
P. O. Box 3044
Sacramento, CA 95812-3044

Friends of the Eel River
1327 I St.
Petaluma, CA 94952
(707) 763-9336
August 25, 2008

To: Sonoma County Water Agency
Attn: Mark Bautista
404 Aviation Blvd.
PO Box 11628
Santa Rosa, CA 95406-1628
By Email: Marc.Bautista@scwa.ca.gov
https://www.nbwra.org/response/form.php

Dear Mr. Bautista:

This letter is submitted by Friends of the Eel River ("FOER") as comments on the Notice of Preparation ("NOP") of an Environmental Impact Report /Environmental Impact Statement ("EIR/EIS") on the North Bay Water Reuse Authority's ("NBWRA") North Bay Water Recycling Program ("Project") (formerly the North San Pablo Restoration and Reuse Project).

The NOP states that the Sonoma County Water Agency ("SCWA") is acting as the Lead Agency under CEQA, and is also the largest member of NBWRA, and the Bureau of Reclamation, US Department of Interior ("USBR") is acting as the federal Lead Agency under NEPA.

In addition to the comments provided in this letter, many of FOER's concerns about the project concept, scope, intent and effects have been presented in detail since early 2007 in prior letters and extensive communications with The Bay Institute (Marc Holmes), members and staff of SCWA (including Grant Davis, Pam Jeane and Renee Weber), NBWRA members (including Bill Long), staff of ESA Consultants (including Jim O'Toole), with the Project's federal legislative sponsors (Congressman Mike Thompson, Congresswoman Lynn Woolsey, Senator Dianne Feinstein, Senator Barbara Boxer), with Senator Jeff Bingaman, Chair of the Senate Energy and Natural Resources Committee, Congressman Nick Rahall II, Chair of the House Natural Resources Committee, and California Assemblyman Jared Huffman. FOER also participated in a Scoping Comment meeting with ESA and Project staff on August 6, 2008 in Petaluma. Since first becoming aware of the nature of the Project, FOER has been attempting to address serious problems and issues as well as opportunities for improving the proposed Project. Earlier FOER comments on the Project are incorporated by reference.

Please note that no notification for the NOP was made to water rights holders, fisheries and river restoration stakeholders for the Russian River and Eel River in Mendocino and Humboldt counties.

Project Alternatives:

CEQA and NEPA require an EIR/ EIS to evaluate a reasonable range of alternatives including alternatives that will avoid or substantially reduce the adverse impacts of a proposed project. The EIR/ EIS should consider a Fourth Alternative to Alternatives 1, 2 and 3 presented, which would be an integrated alternative approach to satisfying the project objectives of *"A cooperative program in the San Pablo Bay region that supports sustainability and environmental enhancement by expanding the use of recycled water"* through the proposed project objectives:

. *Offset urban and agricultural demands on potable supplies;*
. *Enhance local and regional ecosystems;*
. *Improve local and regional water supply reliability;*
. *Maintain and protect public health and safety;*
. *Promote sustainable practices;*
. *Give top priority to local needs for recycled water; and*
. *Implement recycled water facilities in an economically viable manner.*

One of FOER's core concerns is the fact that most of the water supplied by SCWA to the local water districts and cities, which constitutes the bulk of water processed into recycled wastewater by NBWRA members, originates in the Eel River, the Russian River, and the Santa Rosa Plain Groundwater Basin ("SR Groundwater"). These sources are all in seriously degraded and overdrafted conditions, with severe negative impacts on their respective salmonid fisheries (listed Coho, Chinook and Steelhead species), water quality, temperature, flows, spawning and rearing habitats, groundwater replenishment, erosion and downcutting, and other significant, unmitigated problems.

FOER and other stakeholders in Marin, Sonoma, Humboldt and Mendocino Counties believe that the water should stay within the originating watersheds to the maximum extent possible, and be recycled to reduce demands on our overstressed rivers and groundwater, economy and fisheries, and not exported elsewhere. We want to see a forward-looking system for reuse of recycled water that maximizes this accomplishment over time, and is not principally designed as are the current Project Alternatives to reduce wastewater discharges to San Pablo Bay through the expansion of new vineyard customers who want a permanent new source of irrigation water to replace their overdrafted and compromised sources in Sonoma and Napa Valleys and Solano County.

As SCWA notes in one of its brochures for water customers and consumers:

"LESS IS MORE, ANY TIME OF THE YEAR. Using less water means more water in Lake Mendocino, Lake Sonoma and the Russian River. We rely on these sources for drinking water, wildlife habitat, and recreational activities. Using less water means more in our rivers and reservoirs. Our pristine water supplies, wildlife habitats, and world-class recreational activities in Lake Mendocino, Lake Sonoma, and the Russian River rely on our ability to use less water. The SCWA encourages you to take part in its efforts to use less water."

As the principal supplier of potable water that becomes treated and recycled wastewater for the Project, and as the largest member agency in NBWRA, SCWA is in a key position to assist, support, require, and provide inducements for upstream water demand reductions, thus helping NBWRA member districts to reduce through-put to their wastewater treatment plants, reduce discharges of treated wastewater, and reduce the size and extent of the currently proposed Project Alternatives 1, 2 and 3.

It is essential that the NBWRA Project contribute substantially over time to reducing the demands on the source waters (Eel and Russian Rivers, and SR Groundwater) by offsetting potable water demands upstream of their wastewater treatment plants. Alternatives 1, 2 and 3 do not do this in any significant way. They in fact provide treated wastewater to many new agricultural customers who will become dependent on transfers of these source waters to southern Sonoma and Napa Valleys to replace their overdrafted and saline contaminated local supplies. This, in the long run, will increase demands on the source waters for continued and higher levels of water production and diversions.

According to the Camp, Dresser McKee Preliminary Engineering Reports, the Alternatives presented in the NOP would use 5,000-11,000 horsepower for new pumps, becoming a major source of new greenhouse gas emissions, when we must be reducing that impact instead. The Project would deliver only 1400-1459AF/Yr of recycled water to displace potable urban water demands in Novato and Sonoma. A small portion of the recycled water might be used for the Napa Salt Marsh Restoration Project. The Program cost is estimated at $311-512M in capital costs, with $10-12M/yr operating costs, with costs of recycled water estimated between $2-4,000/AF.

FOER is looking for a Project Alternative that will, in the short and long term, reduce demands for diversions from these River and groundwater sources, and which increases those demand reductions over the lifespan of the Project. This would be a true reflection and implementation of a 'sustainable' project. While FOER fully supports the restoration of the Napa Salt Marsh (former Cargill lands) and reduction of discharges of treated wastewater to San Pablo Bay, the current Alternatives fail to address a series of other opportunities and problems that must be incorporated given current knowledge, engineering options, and the needs of the 21st Century.

The intent of developing and presenting a Fourth Alternative is to satisfy the stated Project objectives while also reducing demands for water diversions on the Russian

and Eel Rivers and SR Groundwater, reducing energy consumption and greenhouse gas emissions, and providing support and implementation of long-term sustainable management of the source watersheds involved in supplying water used in the Project, and supporting the restoration of the Russian and Eel Rivers and SR Groundwater.

The recreational and commercial fisheries in Humboldt, Mendocino and Sonoma Counties has already suffered significant damages from a century of water diversions, and additional increasing demands for water from these sources, whether direct or indirect, significantly impair efforts for restoration and recovery.

Such an Alternative would provide a significant opportunity for the SCWA (the region's largest wholesale water supplier, Russian River Project owner and manager, NBWRA member, and Project sponsor) and other NBWRA members to meet the Project goals and reduce its environmental impacts. A full evaluation of alternatives will further the goals of CEQA and NEPA to ensure protection of the environment.

> *The CEQA reporting process is not designed to freeze the ultimate proposal in the precise mold of the initial project; indeed, new and unforeseen insights may emerge during investigation, evoking revision of the original proposal . . . . The lead agency may determine an environmentally superior alternative is more desirable or [that] mitigation measures must be adopted. Environmentally superior alternatives must be examined whether or not they would impede to some degree the attainment of project objectives.*
> (Kings County Farm Bureau v. City of Hanford, (1990) Cal.App.3d 692, 735-737.)

FOER has consistently requested that the Project's Objectives be redefined and clarified to meet the needs of protecting the Eel and Russian Rivers and SR Groundwater, as the primary sources of water that becomes the treated wastewater produced by NBWRA member agencies and districts. We have strongly advocated that the Project's Objectives be more carefully defined to include language such as the following:

- The first and highest priority objective for the use of recycled water shall be to maximize the offset of potable water demands within the local agencies' urban service area, prior to any export of recycled water in excess of local needs. (This is consistent with the recently amended NBWRA MOU language.)
- Improve regional cooperation and planning consistent with approved land use plans and zoning.
- Incorporate and promote Best Management Practices ("BMPs") for water and energy efficiency and minimize Greenhouse Gas ("GHG") emissions associated with the Project.

- Outside of urban service areas of each local agency, the priority for use of recycled water shall be for agricultural use.
- Local storage of recycled water destined for agricultural users shall be constructed at the expense of the beneficiaries, not through public subsidies.

A fourth Alternative should also be incorporating these principles and objectives to produce a project that is far superior environmentally than the current Project's mid-20th Century concept and design for a "pump and pipe water distribution project." The current Project's three Alternatives are unfortunately based on both a limited engineering objective and vision of what can be accomplished, ignorance of GHG emission and climate change issues and impacts to the source waters, as well as based on the perceived political and project funding needs to create a large - and larger, and largest - water reuse project that Project sponsors believe meets the institutional goals of USBR's Title XVI funding requirements.

There are apparently significant political inducements to create larger project sizing, with more potential irrigation customers, to qualify for federal and state funding priorities. However, this institutional funding and approval bias should not be used as impediments to a more sustainable project design. A Fourth Alternative must address and overcome these shortcomings and barriers.

The EIS/ EIR must also describe the possible governance, financial and administrative alternatives for the Project, so that the public can assess accountability and potential environmental and economic impacts of any particular structure proposed to be used.

Environmental Impacts of the Project:

The NOP recites in general terms the areas of environmental impacts that will be reviewed in the EIR/ EIS. FOER requests that the EIR/ EIS provide a detailed analysis of all of the potentially significant environmental impacts of the Project, and all feasible mitigation measures and alternatives. In order for the EIR/ EIS to serve its purpose as an informational document, it is essential that the EIR/ EIS not understate the severity or extent of the impacts associated with the proposed Project.

To provide an accurate view of the impacts of the proposed Project, the EIR/ EIS should, at a minimum, evaluate current and future, direct and indirect and cumulative impacts from the incremental impacts of the project when added to other closely related past, present and reasonably foreseeable probable future projects. Future projects need not be certain to occur to be considered in the cumulative impacts analysis; the key is that they appear foreseeable at the time of the EIR/EIS preparation. The EIS/ EIR must demonstrate reasonable efforts to discover, disclose and discuss past, present and future projects including those under review by other agencies.

This would include an evaluation of cumulative impacts resulting from the implementation of the Project, including future demands for water use or diversions, and limitations on water diversions and minimum streamflows required for the Eel and Russian Rivers.

- Impacts to the source waters used in the Project: Eel River, Russian River, SR Groundwater, State Water Project, Milliken-Sarco-Tulucay Creeks (MST), and other sources of potable water that become inflows to the wastewater-generating agencies of NBWRA. This includes impacts to the devastated salmon and steelhead fisheries, and other adverse impacts to the riparian systems.

- Impacts to the Eel River and the Russian River, associated with continued diversions of water from the Eel River, including maintenance of Lake Mendocino and Lake Sonoma water supply storage levels, SWRCB D.1610 minimum instream flows in the Russian River, and FERC requirements for flows through the Potter Valley Project.
-
- Address cumulative impacts and new information relevant to the impacts of the Project, including:
- any proposals for increased diversions from the Russian River system and Lake Sonoma anticipated in SCWA's Water Supply, Transmission and Reliability Project ("WSTRP"), the 11th Amended Agreement for Water Supply and the MOU Regarding Water Transmission System Capacity Allocation During Temporary Impairment;
- anticipated changes in D.1610;
- anticipated changes in FERC flow requirements and relicensing of the Potter Valley Project;
- listing of the Russian and Eel Rivers on the 303(d) list of impaired waterways;
- listings of several species of salmonid as threatened or endangered under the federal Endangered Species Act;
- proposed transfers and uses of treated wastewater in SCWA's North Sonoma County Agricultural Reuse Program;
- proposed transfers and uses of treated wastewater in Santa Rosa's Urban Water Reuse Program (both proposed USBR Title XVI programs);
- proposals in the Sonoma County Aggregate Resource Management Plan ("ARM Plan") to continue, reduce or eliminate the mining of the gravel and sand aquifer and terraces of the Russian River which affect water storage capacity of the aquifer;
- proposed changes or increases in water rights and diversions from Lake Mendocino by various water districts, including the Mendocino County Russian River Flood Control and Water Conservation Improvement District or the Redwood Valley County Water District or other Russian River water districts or entities;

- current proposals for implementation of AB2121 by the State Water Resources Control Board ("SWRCB") as it would affect water diversions and permits in the Russian River and other regional watersheds
- Direction to SCWA by the SWRCB to detail a plan of water conservation efforts that will offset future increases in demand, which in turn will result in no increase in Russian River diversions (Feb. 2, 2005)
- Watershed Management for Potable Water Supply program, operated and financed by the City of New York to protect its watershed for long term health and sustainability.
-
- Negative economic impacts in the Eel River Basin associated with continued diversions of almost all of the Eel River's summer flows which also have adverse physical impacts, including changes in development patterns, blight, increased growth and development in Sonoma, Marin, Napa and Solano Counties, and increased pressure for development of other extractive industries, such as timber harvesting and gravel mining

- Impacts of the Project's Alternatives, currently and over the Project's lifespan, as they may increase or limit or reduce current and future availability and demands for water diverted from the source waters through SCWA and other water production facilities.

- Impacts of the Project's alternatives that will increase, reduce or induce changes in potable water demands of the water districts, cities and agencies (San Rafael/ Marin Municipal Water District ["MMWD"], Novato/ North Marin Water District ["NMWD"], City of Sonoma, City of Napa) that supply potable water that becomes the wastewater inflows to NBWRA members, at start of Project, in 15 years, and at end of Project's lifespan.

- Impacts of long term needs by existing water consumers and supplying agencies for recycling and reuse within the Russian and Eel Rivers and SR Groundwater supply areas to offset current and future potable water demands, that may become competition for recycled water with NBWRA recycled water customers. The Project takes water that is currently available for offsets, and pumps it eastward to provide supplemental water primarily for vineyards which have overdrafted their local groundwater and surface water supplies.

- Impacts of increasing demands for water to remain in the Russian River, Eel River and SR Groundwater, versus Project needs for increasing export of water to irrigation customers. The Project will lock in future demands for diversions and pumping to supply NBWRA agricultural customers; Impacts of future demand increases and potential conflicts for reuse of treated wastewater within the Russian and Eel Rivers, SR Groundwater, State Water Project, MST creek areas, etc, versus increasing demands for recycled water in the Sonoma and Napa Valleys to offset local water overdrafting and salination of groundwater.
-

- Evaluate what changes in vineyard practices may be necessary to reduce agricultural demands for water and recycled water, or shifts to crops suitable to be in balance with the actual local water availability without the Project.

-

- Address the impacts of providing NBWRA recycled water derived from the Russian and Eel Rivers and SR Groundwater, which go primarily to users in Southern Sonoma and Napa Valleys in comparison with maximizing the reuse within the source watersheds; local groundwater and surface waters have been overdrafted (Sonoma and Napa Valleys, SMT creeks) and increased saline intrusion in the lower Valleys.

-

- The federal Title XVI legislation (S1472, HR236) allows Project expansion into Solano Co as well – clarification is necessary to address the Project's potential in Solano County, including the option of amending the legislation to eliminate this expansion capability or legislation amendment required. What would this Project's expansion into Solano County encompass?

-

- Identify all sources and quantities of water to be used in the NBWRA Project, including the percentage of Russian River Project (SCWA) water delivered thru the NBWRA Project to intended users.

-

- Identify the volume, duration, seasonality and percentage of Russian River Project (SCWA) water delivered to Napa-Sonoma Salt Marsh Restoration Project thru the NBWRA project. Compare this with the water to be delivered through the Corps of Engineers/Coastal Conservancy Napa Salt Marsh Restoration Project. Identify the relationships (engineering, financial, fiscal, management; operating authority, objectives) between NBWRA and the CoE/Coastal Conservancy Napa Salt Marsh Restoration Projects.

-

- Impacts for expanded recycled water service or potable water service east of Napa Valley, including Solano County? (currently allowed in the federal legislation's enabling language in S.1472 and HR236)

-

- Impacts of potential expansion or extension of the North Bay Aqueduct, or other State Water Project or Sacramento River or Delta aqueducts or other East Bay sources or users, to tie or connect with the Project.

-

- Impacts of irrigation of lands currently used by Infineon Raceway, Port Sonoma, and other agricultural or non-agricultural lands along the San Pablo Bay front. Sonoma County adopted policy currently prohibit use of recycled water to irrigate lands southward of Highway 37. Address impacts of potential for induced growth as a result of supplying water to currently water-scarce non-developed, non-agricultural, or fallow lands.

-

- Impacts of emerging toxics and other wastewater contaminants; identify contaminants, their concentrations and TMDLs; sources and potential source reductions. Include chlorination byproducts; pharmaceuticals, personal health care products; hormone disruptors; estrogenics; pesticides, herbicides, fungicides, insecticides; MTBE; MSRA and other emerging antibiotic resistant organisms.
-
- Impacts of contaminants in recycled wastewater on local groundwater and surface water; impacts on targeted food crops (grapes) and food production (wine)
-
- Impacts of distribution of treated wastewater on organic growers, residential neighbors; address suitability of soils in the receiving areas for use of treated wastewater; address impacts of runoff of treated wastewater to surface waters and groundwater.

- Impacts of use of treated wastewater on the regional, national and international market for world-class wine production in Sonoma and Napa Valley wineries and vineyards. Financial impacts to sales in the world market will have direct and indirect physical impacts on the financial success of vineyards, and thus direct and indirect impacts on their viability as agricultural enterprises. There are key international market sectors that prohibit the use of treated wastewater for grapes (including regions in France, Germany and Italy, including Bordeaux for instance) no less any irrigation of grapes. Grape growers in Dry Creek Valley recently refused application of treated wastewater for irrigation and frost protection based on world market impacts to them.

- Identify enforceable Best Management Practices to be required for Project irrigation water recipients, and specific enforceable objectives for reducing water and energy demands. Address the impacts of various alternative BMPs, or failure to adopt and enforce them.

- Define "tertiary treatment standards" to be used for levels of treatment for wastewater produced by the participating agencies. What standards are in place now, and what are anticipated by the start of the Project, and by the end of the Project's lifespan? Identify the impacts of these alternatives. What contaminants, at what level of concentration, during wet and dry weather conditions are expected of the WWTPs? What are the price and cost impacts of various levels of treatment?
-
- Identify Average and Peak Wet Weather lows for each wastewater treatment plant ("WWTP") for each agency of NBWRA, and discharges to receiving waters currently, in 15 years, at end of lifespan of the project. Identify and address impacts of improvements and repairs to the WWTPs, including reduction of inflows as a result of planned or required Inflow and Infiltration repairs and reductions. Address impacts of I&I improvements on the NBWRA discharge requirements and available recycled water for the Project, including financial

impacts that would alter the inducements or impediments to reduce inflows with decreased or increased availability and sales of recycled water.

-

- Impacts of current Project proposals which include 5,000-11,000hp of new electrical usage for pumping (main trunk lines), plus unquantified additional hp for distribution. Identify sources and impacts of energy and impacts on current generation and electrical distribution capacity.

-

- Impacts of GHG generation. Specify GHG emissions of each Alternative, and proposed alternatives or mitigations to reduce GHG emissions. Identify how NBWRA will meet Sonoma County, City of Sonoma and other adopted objectives for a 25% reduction in GHG emissions by 2015 below 1990 levels? Identify how NBWRA will meet SCWA's public policy commitment to be 'carbon neutral' by 2015?

- Impacts and availability of alternative sources of water for irrigation to the region or inclusion in the recycled water supply for the Project, including the discharges originating in the City of Vallejo (currently discharging 12-60,000 af/yr of secondary treated wastewater to San Pablo Bay and the Carquinez Straits).

- Proposals and impacts of local or regional storage of water for local use. How much storage is needed for irrigation? Frost protection? What are the alternatives for wet, average and dry rainfall years? What is the seasonal demands model? Where would storage be located? Who pays for the storage and supply distribution pipelines and pumps? Where is the plan for this? Address impacts of the cumulative, fully built out alternatives.

- Address impacts of the current practices of drainage of vineyard fields in southern Sonoma and Napa Valleys during the winter (wet) season, where soils are drained to prevent saturation of root zones for irrigated grape rootstock. Address current practices, including volumes drained and timing for fields drained, compared with rainfall and runoff availability. Address impacts of draining fields during the wet seasons in these regions, such that rainwater is not available for groundwater replenishment and storage. Address impacts of field drainage on saline intrusion.

- Address impacts of competing uses of treated wastewater for vineyard irrigation vs. needs for hay production for local dairies; impacts on the necessity for assistance in hay crop production for dairies, impacts on greenbelts and viability of regional dairies; potential losses to greenbelts and dairy industry viability and infrastructure (creameries, feed mills, labs, trucking, labs, etc)

- Address interaction between financial and social impacts of the Project with the ability to provide for future water and energy efficiencies upstream (ie, SCWA water contractors and SCWA's operations).

- Evaluate the 'ecological footprint' for Project over project's lifespan.

- Identify impacts and ways to reduce the through-put of water and loads to participating NBWRA WWTPs, to reduce demands for a large Project for distribution of discharged wastewaters. Although Sanitary Districts do not directly control water uses, 1) SCWA is a member of NBWRA, and is the primary supplier of potable water, and thus sets supply costs and distribution policies for contracting water agencies/districts 2) Sanitary Districts members of NBWRA set rates to users, and can set tiered rates and implement other policies to discourage and reduce wastewater production and reduction of organic and inorganic loads. Reduction of wastewater volumes is a critical key ingredient in creating a long-term sustainable and economically viable Project that will provide maximum protection and restoration for the environment.

- Address impacts and methods to show how this Project can and will remove market barriers to saving water and energy in indoor uses (residential, commercial, industrial and institutional) upstream of the WWTPs, to reduce throughput.

- The Project as now proposed provides significant disincentives for potable water demand reductions in the source waters and water agencies that supply water to customers. Address the comparative impacts of providing incentives for maximizing reuse of water to offset local potable water demands. It is difficult for local water districts to incentivize local reuse (purple plumbing, urban landscape irrigation, etc) when there is a new set of paying customers depending on consistent or increasing flows and availability of treated wastewater for agricultural irrigation outside the urban service areas of the local water agencies.

- How will Project and participating agencies reduce GHG emissions, energy usage, water usage, chemical usage and water throughput over the life of the Project? Identify options and quantify projections over time.

The NBWRA Project EIS/EIR must provide an "Alternative 4" – the Sustainability and Efficiency Alternative, an integrated, regional program that will reduce demands on the source waters, reduce wastewater throughput, reduce discharge volumes, improve efficiencies in water and wastewater usage and encourage restoration of the Russian and Eel Rivers. At a time when water is critically overdrafted in the source waters and throughout the arid West, fisheries are severely impacted, and the trend for water demands on the sources (both legal, permitted, and illegal, unpermitted) is increasing, the Project must be redesigned to provide for increasing amounts of water to be left in the source waters. Alternatives 1,2, and 3 do not meet the needs of the 21st Century in N. Calif and the arid West, and are ill-designed for future global and regional changes in climate and water supplies.

FOER appreciates the opportunity to comment on the NOP. Inasmuch as the NOP contains only general information for the evaluation of the Project's potential environmental impacts, the issues identified in this letter are not intended to be exhaustive. FOER reserves its right to raise other issues during the environmental review process. Please send FOER a copy of the Draft EIR/ EIS when it becomes available.

Sincerely,

David Keller
Bay Area Director
Friends of the Eel River

cc: Nadananda, FOER, Redway, CA
Ellison Folk, Shute, Mihaly & Weinberger LLP

Jim O'Toole

From: NBWRA WEBSITE [noreply@nbwra.org]
Sent: Sunday, August 24, 2008 12:23 AM
To: martin@rauchcc.com; marc.bautista@scwa.ca.gov; Jim O'Toole
Subject: New Notice of Preparation Comment Posted from NBWRA.ORG

A new Notice of Preparation visitor comment has been recorded from the www.nbwra.org website on August 24, 2008, 12:22 am.

Comments:

Thank you for considering the following comments on behalf of GULP.

GULP (Groundwater Under Local Protection) is a community organization of residents and property owners in the Miliken-Sarco-Tulucay (MST) Creek Groundwater Basin in Napa County . GULP has been working with Napa County to develop a solution to the groundwater depletion problem in the MST area. While we generally support the use of recycled water, and believe that recycled water could be a substantial portion of the solution to the MST groundwater depletion problem, many questions remain unanswered. These questions must be addressed by the EIS/R to allow for an appropriate assessment of the environmental impacts potentially associated with delivery of up to 2,000 acre-feet/year (afy) of recycled water, or more. The first 2 of 9 of our specific comments are provided below:

1. MST Project
The EIS/R should evaluate meaningful alternatives as part of the project-level analysis of the proposed recycled water distribution pipeline for the MST. This should include the no project alternative as well as one or more intermediate alternatives delivering smaller quantities of water, as well as an alternative delivering a greater amount of water to an expanded service area (if there is sufficient recycled water available to potentially deliver water to the restoration project, use of that water in the MST should also be considered). Absent an adequate range of alternatives, a true assessment of the environmentally superior/preferred alternative cannot be made. GULP is available to help develop meaningful alternatives.

2. Nutrients and Salts in Recycled Water and Effects on Agriculture The EIS/R should provide a detailed description of the levels of nutrients and salts that can be expected to be present in the recycled water (by specific source/County if there are differences), and their effects on premium wine grapes. The impact analysis should consider both irrigation and frost protection use, and should reflect the results of the long-term study of Napa County's Cooperative Extension Office (study performed by Ed Weber, data available from Mike Anderson, Viticulture Expert, Napa County Cooperative Extension 707-253-4221), as well as Sonoma County's experience with recycled water use on wine grapes.

Jim O'Toole

From: NBWRA WEBSITE [noreply@nbwra.org]
Sent: Sunday, August 24, 2008 12:30 AM
To: martin@rauchcc.com; marc.bautista@scwa.ca.gov; Jim O'Toole
Subject: New Notice of Preparation Comment Posted from NBWRA.ORG

A new Notice of Preparation visitor comment has been recorded from the www.nbwra.org website on August 24, 2008, 12:30 am.

Comments:

Thank you for considering the following comments on behalf of GULP.

GULP (Groundwater Under Local Protection) is a community organization of residents and property owners in the Miliken-Sarco-Tulucay (MST) Creek Groundwater Basin in Napa County . GULP has been working with Napa County to develop a solution to the groundwater depletion problem in the MST area. While we generally support the use of recycled water, and believe that recycled water could be a substantial portion of the solution to the MST groundwater depletion problem, many questions remain unanswered. These questions must be addressed by the EIS/R to allow for an appropriate assessment of the environmental impacts potentially associated with delivery of up to 2,000 acre-feet/year (afy) of recycled water, or more. Comments 3 and 4 of 9 of our specific comments are provided below.

3. Microconstituents in Recycled Water
The EIS/R should present available data on the effects of microconstituents, such as pharmaceuticals and flame retardant chemicals, on agricultural production, and other potential water users. The EIS/R should describe in detail the likelihood of groundwater and surface water contamination from these constituents. The analysis should include an assessment of the likely rate of vertical transport reflecting fate and transport consideration such as adsorption, biodegradation (if any), etc. Similarly, the assessment should include an assessment of the likely volume of direct (recycled water) and indirect (stormwater containing soil exposed to recycled water) run-off associated with recycled water. Modeling of potential impacts/releases is preferred.

4. Greenhouse Gas Emissions
Please provide an assessment of the GHG emissions with and without the project (at both the programmatic and project-specific level). What is the net carbon impact of delivering and tertiary treating the proposed volume of recycled water, and how does that compare to the GHG emissions associated with current practices?

Jim O'Toole

From: NBWRA WEBSITE [noreply@nbwra.org]
Sent: Sunday, August 24, 2008 12:37 AM
To: martin@rauchcc.com; marc.bautista@scwa.ca.gov; Jim O'Toole
Subject: New Notice of Preparation Comment Posted from NBWRA.ORG

A new Notice of Preparation visitor comment has been recorded from the www.nbwra.org website on August 24, 2008, 12:36 am.

Comments:

Thank you for considering the following comments on behalf of GULP.

GULP (Groundwater Under Local Protection) is a community organization of residents and property owners in the Miliken-Sarco-Tulucay (MST) Creek Groundwater Basin in Napa County . GULP has been working with Napa County to develop a solution to the groundwater depletion problem in the MST area. While we generally support the use of recycled water, and believe that recycled water could be a substantial portion of the solution to the MST groundwater depletion problem, many questions remain unanswered. These questions must be addressed by the EIS/R to allow for an appropriate assessment of the environmental impacts potentially associated with delivery of up to 2,000 acre-feet/year (afy) of recycled water, or more. Comments 5 and 6 of 9 of our specific comments are provided below.

5. Growth-Inducing Impacts
How much added growth is projected as a result of the proposed program, and as the result of the specific individual projects included in the program? Please distinguish between agricultural, commercial/industrial, and residential growth, and provide appropriate (feasible, implementable) mitigation measure to address excess growth.

6. Regulatory Environment
Please provide a detailed analysis of the following regulatory issues potentially affecting the project:
a. Inter-basin and inter-watershed water transfers
b. Water rights relative to each County's ability to regulate groundwater and surface withdrawals. (Absent the ability to regulate such withdrawals, this program would clearly have growth-inducing impacts, as users would simply be enabled to increase the irrigated acreage.)
c. Beneficial reuse requirements for POTWs (for both the baseline and future analysis years, so that the no project/no action alternative accurately reflects the likely conditions in the out years)

Jim O'Toole

From: NBWRA WEBSITE [noreply@nbwra.org]
Sent: Sunday, August 24, 2008 12:37 AM
To: martin@rauchcc.com; marc.bautista@scwa.ca.gov; Jim O'Toole
Subject: New Notice of Preparation Comment Posted from NBWRA.ORG

A new Notice of Preparation visitor comment has been recorded from the www.nbwra.org website on August 24, 2008, 12:36 am.

Comments:

Thank you for considering the following comments on behalf of GULP.

GULP (Groundwater Under Local Protection) is a community organization of residents and property owners in the Miliken-Sarco-Tulucay (MST) Creek Groundwater Basin in Napa County . GULP has been working with Napa County to develop a solution to the groundwater depletion problem in the MST area. While we generally support the use of recycled water, and believe that recycled water could be a substantial portion of the solution to the MST groundwater depletion problem, many questions remain unanswered. These questions must be addressed by the EIS/R to allow for an appropriate assessment of the environmental impacts potentially associated with delivery of up to 2,000 acre-feet/year (afy) of recycled water, or more. Comments 5 and 6 of 9 of our specific comments are provided below.

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a. Inter-basin and inter-watershed water transfers
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c. Beneficial reuse requirements for POTWs (for both the baseline and future analysis years, so that the no project/no action alternative accurately reflects the likely conditions in the out years)

Jim O'Toole

From: NBWRA WEBSITE [noreply@nbwra.org]
ent: Sunday, August 24, 2008 12:48 AM
o: martin@rauchcc.com; marc.bautista@scwa.ca.gov; Jim O'Toole
Subject: New Notice of Preparation Comment Posted from NBWRA.ORG

A new Notice of Preparation visitor comment has been recorded from the www.nbwra.org website on August 24, 2008, 12:47 am.

Comments:

Thank you for considering the following comments on behalf of GULP.

GULP (Groundwater Under Local Protection) is a community organization of residents and property owners in the Miliken-Sarco-Tulucay (MST) Creek Groundwater Basin in Napa County . GULP has been working with Napa County to develop a solution to the groundwater depletion problem in the MST area. While we generally support the use of recycled water, and believe that recycled water could be a substantial portion of the solution to the MST groundwater depletion problem, many questions remain unanswered. These questions must be addressed by the EIS/R to allow for an appropriate assessment of the environmental impacts potentially associated with delivery of up to 2,000 acre-feet/year (afy) of recycled water, or more. Comments 7,8 and 9 of 9 of our specific comments are provided below:

7. Water Use by Segment
Please provide a description of the approximate water use by user segment (residential, agricultural, commercial/industrial) for the program area and for each project analyzed. This information is required to assess the effectiveness of various alternatives.

. Temperature Profile of Recycled Water Wine grapes are sensitive to the temperature of irrigation water. Please provide data on the typical annual temperature profile of the recycled water, by County/source.

9. Potential Future Increases in Recycled Water Availability Please describe the limitations inherent in reusing all available recycled water. The most complete alternative still envision discharge of nearly 10,000 afy of water. Are there limitations to treatment capacity, and if so, what are the limitations? Are there limitations to effective reuse, and if so, what are the limitations?

Jim O'Toole

From: Marc Bautista [Marc.Bautista@scwa.ca.gov]
Sent: Sunday, August 24, 2008 4:23 PM
To: Jim O'Toole
Subject: FW: Scoping comments, North Bay Water Use Program

-----Original Message-----
From: Bill and Lucy Kortum [mailto:blkortum@sbcglobal.net]
Sent: Sun 8/24/2008 10:49 AM
To: Marc Bautista
Subject: Scoping comments, North Bay Water Use Program

To: Marc Bautista, Environmental Specialist

Please consider the present and future application of wastewater as to demand for tertiary treatment or secondary treatment.

Lesson learned from Geyser project was demand for constant delivery despite season of year. Demand required agriculture to cut back acreage because Geyser project used water during high summer irrigation requirements.

Analyze crops to be irrigated. Half-acre foot annually for grapes, three acre feet for forage crops/pasture. Irrigated pasture and forage crop usage closer to source of wastewater will save pumping costs.

Agricultural irrigation requires maximum summertime flows, usually beyond the summertime discharge capacity of sewer plants. Urban reuse also has heaviest use in summer.

Summer irrigation requires off-season storage. Study should consider cost of off-season storage.

Study should determine availability of remaining sites for off-season storage, cost of piping to storage facilities, neighborhood resistance to off-season storage.

Sonoma County agriculture was prepared to take all wastewater from

Santa Rosa regional plant and Petaluma plant over and above wintertime discharge to Russian and Petaluma rivers. Cost of storage limited the proposed use. Can proposed project meet the cost of necessary storage?

Justify sending wastewater originating in Sonoma County cities to another county when agriculture could use the water in Sonoma County, possibly keeping the dairy industry environmentally feasible in the county.

Study the resistance of North County grape growers to utilizing Santa Rosa wastewater.

Consider the economic differences between dairy, grape, and Geyser operations and the future competition, both political and economic, as to who will have a priority to use the water.M

Jim O'Toole

From: NBWRA WEBSITE [noreply@nbwra.org]
ent: Monday, August 25, 2008 2:23 PM
o: martin@rauchcc.com; marc.bautista@scwa.ca.gov; Jim O'Toole
Subject: New Notice of Preparation Comment Posted from NBWRA.ORG

A new Notice of Preparation visitor comment has been recorded from the www.nbwra.org website on August 25, 2008, 2:23 pm.

Comments:

On page 2 of NOP, there is the following statement:

"The proposed Project would increase the beneficial use of recycled water in the North Bay Region by reusing water that would otherwise be discharged into San Pablo Bay and its tributaries to provide increased recycled water supply to agricultural, urban, and environmental uses."

The proposed use of tertiary recycled water at the Napa Salt Marsh involves discharge into San Pablo Bay, so it may not be accurate to characterize this as other than a shallow-water discharge.

On page 4 of NOP, there is the following statement:

"LGVSD tertiary treatment capacity would be increased by 0.3 mgd through onsite improvements at the LGVSD treatment plant."

his statement could be misconstrued that the LGVSD facility currently has tertiary treatment; it does not. The facility is owned and operated by the Marin Municipal Water District. A more accurate statement would be: "A 0.3 mgd tertiary treatment facility would be constructed through onsite improvements at the LGVSD treatment plant."

The suggestion that there is existing tertiary treatment at the facility is reiterated again on Page 13/14 of the NOP.

Tom Yarish
23 Nelson Ave, Mill Valley, CA 94941
415.381.6970 voice / 415.381.5521 fax

8/24/2008

Marc Bautista
Sonoma County Water Agency
PO Box 11628
Santa Rosa, CA 95406-1628

Re: NBWRA DEIR comments

Dear Mr. Bautista,

I am submitting these comments on the NBWRA DEIR on my own behalf and on behalf of Friends of the Esteros and the Salmon Protection and Watershed Network (SPAWN).

These comments largely reiterate comments made by myself and many others at recent public and private meetings held by either NBWRA or SCWA, and as such should already be a matter of record.

The overriding issue of concern is that none of the alternatives described in program/project documents address the critical need for advanced conservation and water source protections within the source watersheds, most notably the Eel River and Russian River watersheds. In many ways the Russian River is already overburdened by a vast number of unpermitted appropriations of potable water and unpermitted point and non-point source discharges of contaminated water. This is the status quo, and there is little in the DEIR to redress these issues.

In fact, the DEIR may be seen as an attempt to justify the current level of degradation of the Russian River by establishing long-term needs for the wastewater generated by Russian River source water users, notably the constituent member agencies of the NBWRA. These alternatives, I believe, violate long-standing but never-observed provisions in the California Water Code or similar statutes that prohibit the export of water from any California watershed. In this DEIR, users outside the Russian River and Eel River watersheds are given explicit priority over more critical uses in Sonoma County and within the Russian River watershed.

It is a primary responsibility of the SCWA to protect the natural resources used to derive its potable supplies. In many cases this responsibility conflicts with the ambitions of the SCWA and its contractor agencies to increase appropriations not only from the Russian River but also the contiguous aquifers, tributaries and basins that are part of the Russian River basin aquifers and recharge areas. Hence, the public interest mandates that higher levels of local and agency conservation be implemented prior to any exports of potable and reclaimed wastewater outside of the boundaries of the SCWA and its contracting agencies.

Another realm of issues weighs heavily upon this DEIR and its proponents. At current treatment levels wastewater products from any of the NBWRA member agencies contain a large number of contaminants and toxic compounds that remain a serious issue for soil and wildlife. As demonstrated in the Santa Rosa sub-regional treatment plant discharge project EIRs, even high-levels of tertiary treatment do not produce water that is categorically safe for discharge into waterways. Worse, advances in toxicology and water quality standards point to increasingly difficult and expensive treatment modalities and techniques that will be required to treat discharged wastewater, reverse osmosis (RO) and microfiltration (MF), notably.

While various member agencies may produce varying degrees of treatment, the blending of these waters mandates a very high standard for all sources. At a minimum the DEIR must consider the long-term costs of energy for pumping and treatment and it must analyze these costs against the lost opportunity costs of advanced conservation and local reuse by each agency. If each agency will be required to treat to RO and MF standards then there is no reason the reclaimed water should not be used locally by each agency to offset potable demand within each jurisdiction and service area.

Given the projected increasing costs of energy, advanced treatment and capital projects I seriously doubt that a regional wastewater distribution system such as proposed could provide any net benefit to the public, taxpayers, water consumers or the agencies themselves, not to mention so-called environmental improvement or mitigation projects. In any event, the EIR cannot be considered adequate until these factors are thoroughly examined.

So far as I can see, the only potential beneficiaries from the exportation of wastewater are a relative few private landowners in agriculture and the agencies themselves which may hope to augment their funding and authority through sales and wheeling of wastewater to distant points.

Given the uncertainties presented by energy costs, long-term climate change, extended drought and related dislocations in Sonoma County and Napa County grape agriculture, future needs justifications for regional wastewater distribution are tenuous at best. In fact, these resources are critical for the preservation of natural resources in their watersheds of origin.

Sincerely,

Tom Yarish

NORTH BAY WATER REUSE AUTHORITY

Comments about Scope of the Authority's Forthcoming EIR/EIS

Edwin Orrett • 24 August 2008

The proposed projects are advanced to promote sustainability and environmental enhancement at a regional level:

NORTH BAY WATER REUSE AUTHORITY

A cooperative multi-agency program that promotes sustainability and environmental enhancement in the North San Pablo Bay region by expanding use of recycled water.

The alternative projects proposed are intended to increase the volume of highly treated municipal wastewater produced and used in the North Bay, thereby to reduce detrimental water-related environmental impacts on natural sources and sinks.

The enhancement of sustainability, however, entails performance across a broad array of metrics that encompass environmental, economic, and social issues. While the proposed project purports to address water issues within the environmental domain by reducing total throughput (and reducing wastewater discharge to the shallow waters of San Pablo Bay), potential effects upon greenhouse gas emissions and overall cost appear to deserve greater attention. In fact, a new programmatic approach may be warranted such that the overall project can be configured to enhance sustainability comprehensively.

SUSTAINABILITY

Sustainability arises as a concept at the level of the entire planet. One metric has been created that describes the overall performance of the global human economy with respect to its impact on the health of life on earth: the Ecological Footprint. The most recent value calculated for this indicates the global human economy is in "overshoot." As explained by the Ecological Footprint Network, "It now takes the Earth one year and three months to regenerate what we use in a year."[1]

The degree of overshoot is generally greater than the world average for industrial economies; and is particularly so for the United States, where average global biocapacity is exceeded by nearly fivefold on a per capita basis (2003 data).[2] The largest segment of the US ecological footprint is that related to carbon emissions (59% of the total). This data indicates two important considerations from the environmental perspective for NBWRA to fulfill its sustainability objective:

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[1] http://www.footprintnetwork.org/gfn_sub.php?content=whatwedo (click on "Ecological Footprint;' quote from first page of document that opens.

[2] Data available at: http://www.footprintnetwork.org/gfn_sub.php?content=national_footprints

- The project should contribute to reducing the region's ecological footprint; and
- To accomplish the above, special care should be taken to ensure the project provides a *net reduction* in carbon emissions.

The overall economic and social impacts of the project are also important from the standpoint of sustainability. Who will benefit and who will pay? Will overall costs related to water increase or decrease over time?

SCOPE

The project is worth celebrating for being advanced within the context of sustainability: certainly, our ability to learn how to design projects to perform within this context is the work of our time. Given the cost and impacts of this project as presently conceived, additional time given to adjusting its design is warranted so it may become a model for responding to the challenge of sustainability. Greenhouse gas emissions and overall cost may be the most important factors to attend to in forthcoming design work.

The recently developed Charter for the County of Sonoma's Regional Climate Protection Coordination Plan, with which the Sonoma County Water Agency is a participant, recommends pursuing a multi jurisdictional, collaborative, holistic, and regional approach. Although the NBWRA proposal reflects some of this, its multi jurisdictional quality is mostly across a single dimension (wastewater agencies), and thus lacks the full advantage of a holistic design. In particular, its solution set does not include water efficiency upstream of the proposed participating wastewater plants – surely steps whose sustainability metrics will outperform wastewater reuse. Non use of a resource is always preferable to using (and recycling it), especially when non use is the result of improved efficiency so that no sacrifice is involved.

A recent study of greenhouse gas emissions associated with Santa Rosa's municipal water cycle tracked energy-related emissions from the point water is withdrawn from nature to its eventual discharge either to nature or the Geysers pipeline.[3] It was determined that 3% of the total greenhouse gas emissions are associated with water supply, 10% with wastewater management, and the remaining 87% are on the customer's side of the meter (mostly due to energy used by residential water heaters). Furthermore, it identified an implementation system that will remove most of the market barriers to cost-effective water efficiency measures. This will enable large savings of water and related energy use at positive cash flow for participants. Furthermore, the cost to utilities to support cost-effective efficiency measures becomes minimal after the market barriers are removed.

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[3] *Greenhouse Gas Emissions Related to Water and Wastewater Services: Baseline, Reduction Strategies, and Recommendations*, Climate Protection Campaign: June 2008

The relevance to the NBWRA project is that indoor water use – the source of "supply" for wastewater agencies (along with infiltration and inflow) – is the most expensive water for upstream users. This is because customers incur water and wastewater costs for all indoor water, and also energy costs for water that is heated. Much of this volume – perhaps 40 percent for the average residence – can be saved cost-effectively at today's rates (via 1 gpf toilets, leak repair, aerators and showerheads, clothes washers, and technology to improve the efficiency of the hot water system itself). The fraction of water that is cost-effective to save may also increase after reclamation infrastructure is added, for the latter generally has a positive cost (vs. the negative cost of the right mix of water efficiency measures). Alternatively, if the volume of wastewater influent to wastewater plants is reduced, less reclamation infrastructure may suffice to meet program needs (e.g., reduction of volume of water discharged to San Pablo Bay), thereby reducing costs relative to those otherwise required to achieve the same result.

RECOMMENDATION

Explore integrating high performance indoor water efficiency (offered with a next-generation implementation system) with reclamation. This is a powerful method for more than offsetting reclamation-related GHG emissions while also reducing costs.

APPENDIX 1A

Scoping Report

ESA

1425 N. McDowell Boulevard
Suite 105
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

memorandum

date September 28, 2008

to NBWRA Staff; Bureau of Reclamation

from ESA

subject Scoping Report - NBWRA North Bay Water Recycling Program

This Scoping Report has been prepared to summarize the scoping process completed for the NBWRA North Bay Water Recycling Program EIR/EIS. It provides an overview of the scoping process completed for both NEPA and CEQA, as well as a summary of comments received during the scoping process.

1.0 NEPA Scoping Process

A Notice of Intent was published in the Federal Register by the NEPA Lead Agency, the Bureau of Reclamation, on July 28, 2008. This established a 30-day public review period. During the public review period, NBWRA held three local scoping meetings, which are described under the CEQA Process below. No written comments were received by the Bureau during the Notice of Intent public review period, which closed on August 28, 2008.

2.0 CEQA Scoping Process

A Notice of Preparation (NOP) was circulated on NBWRA letterhead on July 25, 2008. The NOP identified Sonoma County Water Agency as the CEQA Lead Agency, and established a 30-day public review period, which ended August 25, 2008. The NOP was mailed to the State Clearinghouse, and was posted to the NBWRA website. The NOP was directly mailed to 63 parties, and a postcard notification of the NOP's availability was sent to 580 parties.

NBWRA held publically noticed scoping meetings on August 4, 5, and 6 at the locations identified below.

August 4, 2008 6:30 p.m. – 7:30 p.m. Napa Elks Lodge 2804 Soscol Avenue, Napa	August 5, 2008 6:30 p.m. – 7:30 p.m. Margaret Todd Senior Center 1560 Hill Road, Novato	August 6, 2008 6:30 p.m. – 7:30 p.m. Sonoma Community Center 276 East Napa Street, Sonoma

Additional scoping meetings with individual stakeholders were held on August 6, 2008 with the Russian River and Eel River Interest Groups, and on July 27, 2008 with California Department of Parks and Recreation (staff meeting).

3.0 Comment Summary

A total of 12 comment submittals (letters, webpage, emails) were received. **Table 1** provides a summary of the written comments received during the public scoping process, including identification of the commenter, affiliation, date and comment format, and summary of comments provided. **Table 2** provides a summary of verbal comments received during the scoping meetings. Please note that some of these verbal comments were received in question/answer format, and are provided to allow NBWRA review of discussions at the scoping meetings. Collectively, a total of 172 individual comments were received.

3.1 Major Issues Identified in Comments Received

An overview of the major issues and sub-issues identified during the NOP/NOI scoping period is provided below. The number of comments relating to each issue is provided in parentheses.

Water Quality Impacts (13)

- Impacts to Agriculture/Viticulture (3)
- Impacts to Environment (2)
- Impacts to Napa Salt Marsh/San Pablo Bay (3)
- Impacts relating to Micro-constituents (5)

Conservation and Source Water Protection (25)

- Inclusion of conservation as a key element of protecting "source waters" (22)
- Urban Reuse should be the focus of project (3)

Range of Alternatives (9)

- Request for additional "sustainable" alternative addressing conservation and sustainable practices.

Carbon Footprint/Greenhouse Gases/AB 32 (15)

- Identification of project carbon footprint as it relates to range of alternatives and compliance with AB 32 legislation regarding greenhouse gases.

Cumulative Impacts/Growth Inducement (6)

- Request for wide range of cumulative and growth related project analysis.

Water Rights/Export from Service Area (15)

- Export from Service Area
- Interbasin Transfer
- Priority of Service

Storage Facilities (5)

- Quantification of storage needs, location and impacts.

Socio-Economics (27)

- Cost Benefit of Project/ Incorporation of various elements into cost/benefit analysis (16)
- Long-Term Financial Commitment (2)
- Economic impact to agriculture/dairy (7)
- Economic impact to vineyard (2)

NBWRA Governance/Funding/Objectives (10)

- Cost distribution among agencies/who pays (8)
- Objectives (2)

CEQA/NEPA Issue Areas Impact (34)

- Cultural Resources (6), Biological Resources (12), Recreation (4), Traffic (9), Groundwater (2), Geology (1)

Project Description or Process Clarifications (17)

- Questions from the public regarding project description, EIR/EIS process, or approval process.

3.2 Consideration of Comments Received

A primary purpose of this Scoping Report is to document the process of soliciting and identifying comments from interested agencies and the public. The Scoping Process provides the means by which Reclamation and NBWRA can determine those issues that interested participants consider to be the principal areas for study and analysis. Significant environmental issues that have been raised during scoping will be addressed in the EIS/EIR. The following discussion identifies the issues raised in scoping that will be addressed in the EIS/EIR and provides a brief explanation for those issues that will not be considered in the document.

Water Quality Impacts

The EIR/EIS will review whether recycled water use will have the potential to adversely effect end uses, including agricultural crops, vineyards, golf courses, and other uses. Analysis will also review water quality impacts related to salinity, nutrient loading, micro-constituents.

Conservation and Source Water Protection

The EIS/EIS will describe and discuss water conservation practices within the region within the context of water supply planning. The relationship between water supply, water conservation and recycled water will be reviewed, including the issue of whether increases in water conservation would adversely impact recycled water supply availability. The EIR/EIS will also review whether implementation of recycled water projects would have the potential to adversely affect regional water supplies.

Range of Alternatives

The EIS/EIR will describe and discuss the direct and indirect environmental effects of implementing the proposed project and alternatives. The alternatives consist of a range of recycled water use scenarios within the NBWRA area, and the facilities that would be necessary to produce recycled water under each scenario. A rigorous alternatives screening process has been undertaken to identify the alternatives to be included in the EIS/EIR. This process, including the full range of alternatives evaluated, screening criteria and outcomes will be summarized in the EIS/EIR and fully documented in an Appendix.

As part of the evaluation of alternatives, the EIS/EIR will address a No-Action Alternative. The existing environmental conditions will be described as a baseline condition. The No Action Alternative will consider implementation of a smaller recycled water projects individually by the Member Agencies.

Carbon Footprint/Greenhouse Gases/Assembly Bill 32

The EIR/EIS will include a discussion of the anticipated pumping to transfer recycled water from WWTPs to identified service areas. This will be examined within the context of greenhouse gas generation from electrical use. Analysis will include discussion of Assembly Bill 32, which established a State goal of reducing greenhouse gas emissions to 1990 levels by the year 2020 (a reduction of approximately 25 percent from forecast emissions).

Cumulative Impacts/Growth Inducement

For each resource category, the EIS/EIR will include analysis of cumulative effects of each alternative, in combination with other past, present, and reasonably foreseeable future projects affecting the same resources. Where applicable, this analysis will address other recycled water, water supply and development projects in the geographic areas relevant to each resource.

Potential growth-inducing effects of providing recycled water at levels identified for each alternative will be addressed in the EIS/EIR. Analysis will review provision of recycled water in the context of regional and local water supplies, and will review the potential for the proposed project to result in growth beyond the general plans within the NBWRA service area. Secondary effects of growth, including impacts related to agricultural growth or land use conversion, will be examined.

Water Rights/Export from Service Area

Export of recycled water out of the service area of the NBWRA member agencies, i.e., outside of Marin, Sonoma, or Napa Counties, is not proposed. Water rights issues relating to movement of recycled water across county lines will be examined in the EIR/EIS.

Storage Facilities

For each resource category, the EIR/EIS will include analysis of storage facilities proposed under each alternative. For storage facilities proposed under Phase 1, impacts will be examined at a project level of detail. For storage facilities that have not yet been sited, but are necessary for development of the individual Alternatives, impact will be examined a program level of detail.

Socio-Economics

Comments relating to the feasibility and funding of the project that that are not directly related to physical impact discussions within the environmental impact analysis will be addressed in the EIS/EIR to the extent required under NEPA and CEQA, and as relevant for each specific issue. Socio-Economics and environmental justice issues will be reviewed to the extent required under NEPA and CEQA. Analysis will follow the “rule of reason” as established in NEPA and CEQA case law in considering secondary socio-economic effects.

NBWRA Governance/Funding/Objectives

Comments regarding NBWRA governance, fee structure and funding sources, and the project objectives, will be addressed in the EIR/EIS Introduction, Project Background, and Project Description Sections. NBWRA governance, fee structure and funding sources, and comments on the Project Objectives, do not represent environmental impacts, and will not be examined in the EIR/EIS.

CEQA/NEPA Issue Areas Impact

Cultural Resources

The cultural and historical resources that may be affected by reservoir expansion facilities, including conveyance pipelines and inundation areas, will be assessed in accordance with the requirements of Section 106 of the National Historic Preservation Act, NEPA and CEQA.

Biological Resources

The EIS/EIR will address the potential impacts on plants and wildlife that may occur due to implementation of project alternatives. Specific attention will be placed on species protected by federal or state law or regulations. Analysis will include review of changes in discharge levels relating to recycled water use. Mitigation will be identified and discussed, as appropriate. These measures will be developed in consultation with federal and state resource management agencies with regulatory authority over project implementation.

Recreation

The EIS/EIR will discuss adverse effects on recreational facilities in the project area and potential adverse effects on nearby facilities and regional recreational trail systems. Specifically, the EIR/EIS will address potential impacts on California Parks and Recreational holdings in the Sonoma area.

Transportation and Circulation

Potential impacts to local roadways, including those impacted by recycled water pipeline installation under each of the alternatives, will be evaluated. As appropriate, mitigation will be identified to minimize project related impacts.

Groundwater/Geology

The EIR/EIS will discuss potential impacts to proposed facilities from seismic hazards. Where appropriate, mitigation measures will be identified to reduce potential impacts relating to seismic hazards.

Analysis will also review direct and indirect impacts to groundwater resources, including potential beneficial impact to groundwater due to reductions in agricultural pumping.

Project Description or Process Clarifications

Comments regarding details in the Project Description, or clarifications on the EIR/EIS process, will be addressed in the EIR/EIS Introduction, Project Background, and Project Description Sections.

4.0 Comments Beyond the Scope of the EIS/EIR

Comments related to feasibility, funding, cost-benefit, and socio-economic effects of the Proposed Action that are not directly related to physical impact discussions within the environmental impact analysis will be addressed in the EIS/EIR to the extent required under NEPA and CEQA, and as relevant for each specific issue.

TABLE 1
NOP/NOI SCOPING SUMMARY

Meeting Date/Time	No.	Commenter, Affiliation	Comments	Category
State Agencies				
Letter August, 26 2008		**California Department of Transportation** Lisa Carboni, District Branch Chief, Local Development and Intergovernmental Review	• EIR to discuss the project's fair contribution, financing, scheduling, and implementation responsibilities for mitigation measures.	• CEQA/NEPA Technical Issues- Traffic
			• Traffic mitigation fees should be identified in the EIR/EIS.	• CEQA/NEPA Technical Issues- Traffic
			• Concerned with impacts to the State Highway System and adjacent State facilities.	• CEQA/NEPA Technical Issues- Traffic
			• An encroachment permit is required when the project involves work in the State's ROW.	• CEQA/NEPA Technical Issues- Traffic
			• All roadway improvements should be completed prior to issuance of project occupancy permits.	• CEQA/NEPA Technical Issues- Traffic
			• Environmental analysis to evaluate traffic impacts on State facilities based on peak hour trip criteria and road classifications (LOS C, D, E, F). Methodologies to use in the analysis are provided on their website.	• CEQA/NEPA Technical Issues- Traffic
			• Concerned with compliance with NPDES permit due to potential erosion from construction and permanent runoff.	• CEQA/NEPA Technical Issues- Traffic
			• Concerned with impacts on cultural resources. The Department requires a records search to assure compliance with NEPA and CEQA, and meet requirements for an encroachment permit.	• CEQA/NEPA Technical Issues- Traffic
			• Transportation and encroachment permits will be required.	• CEQA/NEPA Technical Issues- Traffic
Letter, July 31, 2008		**Native American Heritage Commission (NAHC)** Katy Sanchez, Program Analyst	• Lead agency should assess whether the project will have an adverse impact on historical resources within the area of the project effect (APE) and mitigate that effect.	• CEQA/NEPA Technical Issues- Cultural Resources
			• Recommends contacting regional archaeological information center for a record search, which will determine: - If areas of the APE have been previously surveyed - If any known cultural resources have already been recorded on/ adjacent to the APE - Low, moderate, or high probability of cultural resources in the APE - If a survey is required to determine whether previously unrecorded cultural resources are present	• CEQA/NEPA Technical Issues- Traffic
			• If an archaeological inventory survey is required, submit a report detailing findings and recommendations of the records search to the appropriate Planning Department and regional archaeological information center - Report should include: Site forms, site significance, and mitigation measures.	• CEQA/NEPA Technical Issues- Cultural Resources
			• Recommends contacting the NAHC for A Sacred Lands File Check, and a list of appropriate Native American contacts for consultation on the project. (list included)	• CEQA/NEPA Technical Issues- Cultural Resources

Meeting Date/Time	No.	Commenter, Affiliation	Comments	Category

TABLE 1 (Continued)
NOP/NOI SCOPING SUMMARY

Meeting Date/Time	No.	Commenter, Affiliation	Comments	Category
State Agencies				
		Native American Heritage Commission (NAHC) (cont.)	• Mitigation plan should include provisions for: - the identification and evaluation of accidentally discovered archeological resources (CEQA 15064.5(f)) - the disposition of recovered artifacts - the discovery of Native American human remains. (Health and Safety Code 7050.5, CEQA 15064.5(e)) and Public Resources Code 5097.98	• CEQA/NEPA Technical Issues-Cultural Resources
			• A certified archaeologist and a culturally affiliated Native American should monitor all ground disturbing activities in archeological sensitive areas	• CEQA/NEPA Technical Issues-Cultural Resources
Letter, August 19, 2008		**State Water Resources Control Board** Linda S. Adams, Secretary for Environmental Protection	• Following public review period requests copy of: (1) draft and final EIR/EIR; (2) a resolution certifying the EIR/EIS, adopting the Mitigation Monitoring and Planning Report (MMRP), and making CEQA findings; (3) all comments received during the review period and Agency response to those comments;(4) adopted MMRP; and (5) filed Notice of Determination.	• Governance/ Funding
			• States that Agency is pursuing funds from the Clean Water State Revolving Fund (SRF) Program to construct project.	• Governance/ Funding
			• State Water Board approval of a SRF funding commitment for project is contingent on resolving environmental issues raised by federal agencies or their representatives.	• Governance/ Funding
			• Project is subject to provision of the Federal Endangered Species Act and must obtain Section 7 clearance from the U.S. Fish and Wildlife Service and/ or Nation Marine Fisheries Service.	• CEQA/NEPA Technical Issues- Biological Resources
			• EIR/EIS must identify whether the Project will involve any direct or indirect effects that may affect federally listed threatened or endangered species and identify applicable conservation measures.	• CEQA/NEPA Technical Issues- Biological Resources
08-04-08		**California Department of Fish and Game** Charles Armor, Regional Manager, Bay Delta Region	• EIS/EIR should include an assessment of endangered, threatened, and locally unique habitats, flora, and fauna within and adjacent to the project area.	• CEQA/NEPA Technical Issues- Biological Resources
			• Assessment should include direct and indirect changes, permanent and temporary, that could occur if the project is implemented.	• CEQA/NEPA Technical Issues- Biological Resources
			• Rare, threatened, and endangered species, including all that meet the CEQA definition, should be addressed.	• CEQA/NEPA Technical Issues- Biological Resources

TABLE 1 (Continued)
NOP/NOI SCOPING SUMMARY

Meeting Date/Time	No.	Commenter, Affiliation	Comments	Category
State Agencies (cont.)				
08-04-08		**California Department of Fish and Game** Charles Armor, Regional Manager, Bay Delta Region	• Provided a link for recommended survey and monitoring protocols. • A Lake and Streambed Alteration Permit may be required. • EIR should identify impacts to riparian and stream resources and provide avoidance, mitigation, monitoring, and reporting commitments.	• CEQA/NEPA Technical Issues- Biological Resources • CEQA/NEPA Technical Issues- Biological Resources
Letter August, 25 2008		**California Department of Parks and Recreation** Stephen Bachman, Associate Park and Recreation Specialist	• Does not endorse any water line option that would require the use of park lands because it would be inconsistent with the park unit general plan, cultural landscape plan, and the national registrar of historic places designation. • Reiterated concern over the recycled water line traversing through Sonoma SHP. • Supports the SVRWP 2 option (NOP, p. 18). • Has not received notification from the State Clearinghouse.	• CEQA/NEPA Technical Issues- Recreation • CEQA/NEPA Technical Issues- Recreation • CEQA/NEPA Technical Issues- Recreation • CEQA/NEPA Technical Issues- Recreation
Public Organizations				
Website 08-24-08; 12:22 AM		**Groundwater Under Local Protection (GULP), Napa County**	• Would like to see an evaluation of alternatives as part of the project-level analysis. This should include the no project alternative, intermediate alternatives delivering smaller amounts of water, and an alternative delivering a greater amount of water to an expanded service area. • Concerned with the levels of salts and nutrients present in the recycled water and their effects on premium wine grapes. • Concerned with the effects of microconstituents in recycled water on agricultural production and water users. Would like an assessment of ground and surface water contamination potential. • What is the net carbon impact of treating and delivering the proposed volume of recycled water compared to the impact of current practices. • Concerned with cumulative growth impacts. • Concerned that regulatory issues (i.e. inter-basin transfers, water rights relative to groundwater withdrawals, and beneficial reuse requirements) • Would like a description of water use by user segment to be used in the assessment of alternatives. • Wants annual temperature profile of recycled water by County/ source to help determine the impact on temperature-sensitive wine grapes. • Concerned with limitations of reusing all available recycled water.	• Range of Alternatives • Water Quality- Impacts to Agriculture • Water Quality- Microconstituents • Carbon Footprint/ Greenhouse Gases/ AB 32 • Cumulative Growth • Interbasin Transfer/ Water Rights/ Export for Service Area/ Source Water/ Service Priority • Water use by category/ segment • Water Quality- Impacts to Agriculture • Socio-Economic

TABLE 1 (Continued)
NOP/NOI SCOPING SUMMARY

Meeting Date/Time	No.	Commenter, Affiliation	Comments	Category
Website 08-24-08; 4:23 PM		**Bill and Lucy Kortum, Residents**	• Want an analysis of irrigated crops. Irrigated crops closer to the source of wastewater will save pumping costs.	• Carbon Footprint/ Greenhouse Gases/ AB 32
			• Want consideration of cost, site availability, and neighborhood resistance to off-season storage.	• Storage
			• Would like wastewater that originates in Sonoma County to remain within the county to be used in the agriculture and dairy industries, instead of being exported.	• Interbasin Transfer/ Water Rights/ Export from Service Area/ Source Waters/Service Priority
			• Want EIR to consider the economic differences between stakeholders to determine priorities for water use.	• Economics/ socio-Economics/ Cost Benefits/ Fees
			• What is the opportunity cost of exporting Sonoma County wastewater elsewhere instead of using it locally for agriculture and dairy production?	• Interbasin Transfer/ Water Rights/ Exports from
			• Would proposed project meet the cost of necessary storage to store wastewater from Santa Rosa and Petaluma?	• Economics/ Socio-Economics/ Cost Benefits/ Fees
Letter August 24, 2008		**Tom Yarish, Resident, Friends of the Esteros, Salmon Protection and Watershed Network (SPAWN)**	• Concerned that the alternatives do not address the need for conservation and water source protection.	• Russian/ Eel River Source Water Protection
			• Concerned that the DEIR does not redress illegal water appropriations.	• Water Rights/ Priority
			• Opposes water exportation, as it violates provisions in the California Water Code that prohibit the export of water from any California watershed.	• Export from Service Area/ Source Waters/ Service Priority
			• Wants water users within the Russian River watershed to have priority on water.	• Interbasin Transfer/ Water Rights/ Priority
			• Wants SCWA to exercise higher levels of conservation prior to exporting potable water and reclaimed wastewater outside the boundaries of the SCWA.	• Conservation/ Export from Service Area/ Source Waters/Service Priority
			• Wants DEIR to consider the long-term costs of energy for pumping and treatment and analyze costs against the lost opportunity costs of conservation and local reuse.	• Economics/ Socio-Economics/ Cost Benefits/ Fees
			• Concerned about impacts from contaminants in wastewater on wildlife and high costs of difficult treatment.	• Water Quality-Microconstituents
Letter August 25, 2008		**David Keller, Bay Area Director, Friends of the Eel River**	• Would like water to stay within watershed it originated in, and be recycled to reduce demand on overstressed rivers, instead of vineyard expansion.	• Russian/ Eel River Source Water Protection/ Conservation Measures
			• Would like a project alternative that will reduce demands for diversions from these water sources by offsetting potable water demands upstream.	• Russian/ Eel River Source Water Protection
			• Supports restoration of Napa Salt Marsh and reduction of discharges of treated wastewater to SPB.	• Alternatives
			• Would like Project Objective's to be redefined to protect the Eel and Russian Rivers and Santa Rosa groundwater.	• Water Quality/Objectives

TABLE 1 (Continued)
NOP/NOI SCOPING SUMMARY

Meeting Date/Time	No.	Commenter, Affiliation	Comments	Category
Public Organizations (cont.)				
		David Keller, Bay Area Director, Friends of the Eel River (cont.)	• Concerned with significant impacts and cumulative impacts of the project on source waters, fisheries, and flows, water quality, erosion, and groundwater replenishment. • Wants clarification on regulatory concerns, like changes in 1610, listing of the Russian and Eel Rivers on the 303 (d) list, listing of salmonids under the Endangered Species Act, changes in FERC flow requirements, among others. • Wants a discussion of possible governance, financial, and administrative alternatives in order to evaluate the environmental and economic impact of individual proposed structures. • Concerned by impacts from continued diversions, demands for water to remain in the river system, long-term needs for recycling and reuse, expansion of the North Bay Aqueduct, irrigation practices, wastewater contaminants, on the source waters and fisheries of the Eel and Russian Rivers, and SR Groundwater. • Concerned with impacts from proposed project pumping facilities and potential greenhouse gas generation. • What is the regional impact on water storage? • Impacts on the viticulture industry, including impacts of competing use of treated watewaster for irrigation versus dairy production, international trade, drainage. • Identify impacts and techniques to reduce through-put of water and loads to participating WWTPs. • Address an “Alternative 4” to reduce impacts from above-listed issues.	• Cumulative Impacts • Cumulative Impacts • Governance/ Funding • Russian/ Eel River Source Water Protection/ Conservation Measures • Carbon Footprint/ Greenhouse Gases/ AB 32 • Storage • Economic Impact to Agriculture • Russian/ Eel River Source Water Protection/ “Through put” • Range of Alternatives
Letter August 24, 2008		**Edwin (Ned) Orrett**	• Concerned that the effects of greenhouse gas emissions and the overall costs of the project are not sustainable. • Would like the project to provide a net reduction in regional carbon emissions. • Project should reflect a multi-jurisdictional, holistic design. One solution should include conservation and water efficiency upstream. • Made comparisons to Santa Rosa’s municipal water cycle and emissions. • Cost concerns: 1) Indoor water use, the source of supply for wastewater agencies, is the most expensive for upstream users; 2) If the volume of wastewater effluent to wastewater plants is reduced, less reclamation infrastructure may be required, thereby reducing costs.	• Carbon Footprint/ Greenhouse Gases/AB 32 • Carbon Footprint/ Greenhouse Gases/AB 32 • Russian/ Eel River Source Water Protection/ Conseravtion • Carbon Footprint/ GHG Gases/AB 32 • Socio - Economics
Letter August, 26 2008		**Barbara Salzman,** **Marin Audubon Society**	• Concerned with impacts on existing habitat. List all potentially impacted habitats, a describe baseline conditions, construction impacts, potential habitat changes.	• CEQA/NEPA Technical Issue - Biological Resources

TABLE 1 (Continued)
NOP/NOI SCOPING SUMMARY

Meeting Date/Time	No.	Commenter, Affiliation	Comments	Category
Public Organizations (cont.)				
		Marin Audubon Society (cont.)	• Would like a discussion about the impacts on water quality, wetlands, and aquatic habitats. Concerned with the discharge of treated water to streams, nutrient loading, and the accumulation of heavy metals.	• CEQA/NEPA Technical Issue - Biological Resources
			• Provided questions for further analysis for the three alternatives regarding the following issues: - Availability of wastewater to accommodate projected water quantity; - Use of water from the Napa saltpond; - Definition, uses, and locations of "potential user" ponds; - Impacts from an additional pipeline; - Storage.	• Water Quality-Microconstituents - Water Quality-Microconstituents/-Impacts to Envm. - Water Quality-Impacts to Envm. - Storage - Biological Resources - Storage
			• Concerned with cumulative impacts on biology	• CEQA/NEPA Technical Issue - Biological
			• Concerned with growth inducing impacts, particularly in the Port Sonoma area.	• Cumulative Growth
Email (08-16-08) With attached letter (11-11-07)		**Stephen Fuller-Rowell, Sonoma County Water Coalition (SCWC)**	• DEIR/ EIS should address issues raised in the October 2007 letter to Senator Jeff Bingaman, Chairman of Senate Energy and Natural Resources Committee	• Russian/ Eel River Source Water Protection/ "Through put"
			Letter summarized as follows:	
			• SCWC urges to defeat the defective bill (S.1472 North Bay Water Reuse Program Act of 2007 Companion Bill, H.R.236) and offers assistance in rewriting the bill	• Russian/ Eel River Source Water Protection/ "Through put"
			• SCWC has worked since 2004 to get public policies in place to protect and restore the Russian and Eel Rivers, home to 3 species of listed salmonids	• Russian/ Eel River Source Water Protection
			• Sonoma County Water Agency (SCWA) is subject to 15% mandatory cutbacks in withdrawals from the Russian River	• Russian/ Eel River Source Water Protection/ Conservation
			• It is necessary to plan for the long term future of reliable water supplies in our region, while protecting and restoring our natural public trust resources	• Russian/ Eel River Source Water Protection/ Conservation
			• SCWC is working to reduce demands for potable water and to maximize water efficiencies and conservation. They support appropriate reuse of highly treated wastewater within SCWA service area to displace potable water demands, and eliminate exports of SCWA water to other regions.	• Interbasin Transfer/ Water Rights/ Export from Service Area/ Source Waters/ Service Priority
			• The bill fails to set any priority that the recycled water be used to offset and reduce local potable water demands first	• Interbasin Transfer/ Water Rights/ Exports/ Source Waters/ Service Priority
			• The bill fails to set any limits on exporting water or mandate addressing the impacts from source waters (Russian, Eel Rivers/ Sonoma County groundwater) • The bill fails to provide limits on how far the pipelines and pumps maybe built	• Interbasin Transfer/ Water Rights/ Export from Service Area/ Source Waters/ Service Priority

TABLE 1 (Continued)
NOP/NOI SCOPING SUMMARY

Meeting Date/Time	No.	Commenter, Affiliation	Comments	Category
Public Organizations (cont.)				
		Stephen Fuller-Rowell, Sonoma County Water Coalition (SCWC) (cont.)	• The bill fails to provide limits on future use of the pipelines, particularly those to serve the Napa-Sonoma Marsh Restoration Project	• Interbasin Transfer/ Water Rights/ Export from Service Area/ Source Waters/ Service Priority
			• Most of the treated wastewater is derived from the SCWA-supplied municipal contractors' treated wastewater, and should not be available to offset new of existing potable water demands	• Russian/ Eel River Source Water Protection/ Conservation
			• Wastewater providers have expressed concerns over the cost to independently finance the infrastructure to support the project	• Economics/ socio-Economics/ Cost Benefits/ Fees
			• SCWC supports Policy WR-5a from the final Draft Sonoma County General Plan, which states: "Any consideration to export additional water resources place primary priority upon the benefit of and need for the water resources in Sonoma County and shall assure that water resources needed by urban, rural and agricultural water users in Sonoma County will not be exported outside the county." (Policy WR-5a)	• Interbasin Transfer/ Water Rights/ Export from Service Area/ Source Waters/ Service Priority

TABLE 2
SCOPING MEETING COMMENTS

Scoping Meeting Comments			
Napa County Scoping Meeting 8-04-08			
	Unidentified Napa Residents (Question/Answer)	• Is the Silverado Country Club included? • What is the connectivity of the aquifer with the aquifers in the MST area • Expresses concern about pipeline routes through private property • EIR should address project alternatives • Has the County retained a consultant to assess any local project • EIR should address project costs including future regulatory requirements under the "No Project" Alternative • EIR should indicate intended use of recycled water • EIR should address what portion of project cost would be funded by each Agency • EIR should analyze effects of seismic activity to facilities • EIR should include user cost analysis	• Project Description • Project Description • Project Description • Range of Alternatives • Project Description • Socio- Economic • Project Description • Governance/ Funding • Geology • Socio-Economic
	Hugh Cornwall	• Concern about project's effect on groundwater levels	• Geology
	Jerry Gauthier	• Question about allocation of recycled water	• Governance/Funding
	Fred Swingle	• Inquired about ESA and the CEQA process	• Project Description/ Process
	Chuck Rathjen	• Concerns about project funding and participants	• Project Description/ Process
	Mark Gorney	• How do the agencies decide on which alternative to chose through the CEQA process	• Project Description/ Process
Marin County Scoping Meeting 08-05-08			
	Unidentified Marin Residents (Question/Answer)	• What is the intended use of the recycled water • EIR should address desalination in the alternatives sections • EIR should provide background information on the Napa Salt Marsh Project • What is the anticipated recycled water need for the Napa Salt March • What are the construction details; will the pipeline be visible • EIR should analyze effects of reducing discharge to Bay • Are other counties implementing similar projects • Define pipeline easement in the Napa Salt Marsh portion of the project • Define cost estimates related to service area • Define recycled water fees • How will EIR/EIS findings lead to project implementation	• Project Description/ Process • Alternatives • Project Description/ Process • Project Description/ Process • Project Description/ Process • Water Resources • Project Description • Project Description • Governance/Funding • Governance/Funding • Project Description/Process

TABLE 2 (Continued)
SCOPING MEETING COMMENTS

Marin County Scoping Meeting 08-05-08 (cont.)			
		• Does the project relate/ fit with other projects being implemented in CA [i.e. So Cal and recycled water for potable use] • Define Tertiary treatment • Do the fields by the Hwy 37 overpass use recycled water	• Cumulative • Project Description/ Process • Project Description/ Process
	Dick O'Brien	• When is the expected project implementation	• Project Description/ Process
	Karen Loci	• How does the project prioritize users of recycled water	• Project Description/ Process
	Berry Buckley	• San Rafael and Terra Linda both use and support recycled water use. Supports project	• Project Description/ Process
Russian River Interest Groups - Scoping Meeting 08-06-08			
Scoping Meeting 8-06-08, ESA Petaluma	David Keller	• EIR/EIR needs a 4th Alternative to address conservation and sustainable practices • Meetings should be announced in Northern watersheds • Water is not an infinite resource • The project needs to be feasible in 50 years; financial analysis should include a 50 year range • Draft EIR will be fully faulted with CDM alternatives Project is grossing ineffective morally, ethically, and environmentally • EIR/EIS needs to analyze 50 year ecological footprint • Project needs to have a zero carbon footprint- how is this possible with 5,000 to 11,000 hp of pumping • SCWA needs to use conservation measures and reduce users • EIR/EIS should discuss of the impact to source waters and overdrafts on Eel and Russian Rivers • EIR/EIS should address secondary impacts of the collapse of dairies if vineyard users take priority over diary users • This project supports vineyard users that over-irrigate then drain their fields; this must stop • Primary goal of the project should be to offset potable water demand. This project does not reduce demand because agricultural users have permanent contracts. SCWA has the power to change water use.	• Alternatives • Project Description/ Process • Project Description/ Process • Socio- Economic • Project Objectives • Socio- Economic • Carbon Footprint/ Greenhouse Gases/ AB 32 • Conservation and Source Water Protection • Conservation and Source Water Protection • Socio- Economics/ Land Use • Water Resources • Project Objectives
	Don Lollock	• Concern about benefits to urban vs. agriculture (vineyard) • Urban use and future demands need to be re- examined • Program should focus on urban users rather than agricultural users	• Socio-Economics • Conservation and Source Water Protection • Conservation and

TABLE 2 (Continued)
SCOPING MEETING COMMENTS

		• Highest priority of use for treated wastewater is to reduce current and future urban demands locally • Project should not create new vineyard customers • CDM draft EIR/EIS needs to be redone with a 4th Alternative- to address impacts on sources waters (Russian/ Eel Rivers)	Source Water Protection • Conservation and Source Water Protection • Conservation and Source Water Protection • Alternatives
Russian River Interest Groups - Scoping Meeting 08-06-08 (cont.)			
	Ned Orritt	• Project should focus on interaction between financial (bonds) and sustainability- easiest way to do this is to focus up river • Does this project decrease incentives to improve water use efficiency in order to maintain an inflow of effluent for recycled water production? • 80% of greenhouse gasses in the municipal water cycle is from customer's homes • The best way to improve water supply is to increase conservation (efficiency) first. This project should seek to improve upstream efficiency first then recycle • Recommends to research other options to answer greenhouse gas/ water issues	• Socio- Economics • Project Objectives • Carbon Footprint/ Greenhouse Gases/AB 32 • Conservation and Source Water Protection • Carbon Footprint/ Greenhouse Gases/AB 32
	Tom Yarish	• Not convinced to move water out of watershed • Project diverts attention from other needs and dignifies uses that should not happen • Should reduce consumption locally first (agrees with Ned) • EIR/EIS should address Water Quality issues- mixing different treatment levels together	• Conservation and Source Water Protection • Conservation and Source Water Protection • Conservation and Source Water Protection • Water Quality
	Bill Cortum	• Involved in Water Reuse/ Ag issues since 1972; need to protection of open space; Need to keep water here • Storage will be biggest problem- how will you pay for adequate storage • Although there is urban pressure we should try to keep dairies here to diversify land use • Dairies should be prioritized to receive recycled water above vineyards • Who pays for what in this project	• Project Description • Storage/Socio-Economics • Land Use • Project Objectives • Governance/ Funding
	Veronica Jacobi (commenting as private citizen)	• EIR/EIS should address climate change impacts: - Wildlife enhancement - Diversity of agriculture (look at existing ag. And see how the project will increase demand) - Need to research better uses for water and money	• Carbon Footprint/ Greenhouse Gases/AB 32 • Land Use • Socio- Economic

TABLE 2 (Continued)
SCOPING MEETING COMMENTS

		(i.e., promoting grey water use) • If this project improves agricultures ability to survive, who should pay for each portion of project • EIR/EIS should address carbon footprint of project; what would it take to have a zero footprint • What is the best way to reduce emissions- only run pumps at certain times (to keep system functional) to where water is needed the most • Consider an alternative that solves the problem in a different way	• Governance/Funding • Carbon Footprint/ Greenhouse Gases/AB 32 • Carbon Footprint/ Greenhouse Gases/AB 32 • Range of Alternatives
		• If the worst case scenario happens in terms of climate impacts, what happens to this project and the environment • Evaluate all things in the context of worst case climate change: carbon sequestration, wildlife enhancement, algae for biofuels, agricultural diversity/ benefits • What if there is an energy price increase	• Carbon Footprint/ Greenhouse Gases/AB 32 • Carbon Footprint/ Greenhouse Gases/AB 32 • Socio- Economic
	Tiffany Renee	• How will future consumer labeling of wine (with use of recycled water) affect industry. • Was this taken into account with the economic model.	• Socio- Economic • Socio- Economic
	John Roberts	• Title 16 money competition with the City of Santa Rosa (Thompson/ Woolsey) • Russian River should be recycled back North- keep water in once watershed	• Socio- Economic • Conservation and Source Water Protection

APPENDIX 3.1
Geology

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to geology and the proposed project.

LGVSD

City of San Rafael General Plan

S-4. Geotechnical Review: Continue to require geotechnical investigations for development proposals as set forth in the City's Geotechnical Review Matrix (Appendix F). Such studies should determine the actual extent of geotechnical hazards, optimum design for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location.

S-4a. Geotechnical Review of Proposed Development: Require soils and geologic peer review of development proposals in accordance with the Geotechnical Review Matrix to assess such hazards as potential seismic hazards, liquefaction, landsliding, mudsliding, erosion, sedimentation and settlement in order to determine if these hazards can be adequately mitigated. Levels of exposure to seismic risk for land uses and structures are also outlined in the Geotechnical Review Matrix, which shall be considered in conjunction with development review.

S-5. Minimize Potential Effects of Geological Hazards: Development proposed within areas of potential geological hazards shall not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties. Development in areas subject to soils and geologic hazards shall incorporate adequate mitigation measures. The City will only approve new development in areas of identified hazard if such hazard can be appropriately mitigated.

S-7. Minimize Potential Effects of Landslides: Development proposed in areas with existing landslides or with the potential for landslides (as identified by a registered engineering geologist or geotechnical engineer) shall not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties. Development in areas subject to landslide hazards shall incorporate adequate mitigation measures that have a design factor of safety of at least 1.5 for static conditions and 1.0 for pseudo-static (earthquake) conditions. The landslide mitigation should consider multiple options in order to reduce the secondary impacts (loss of vegetation, site grading, traffic, visual) associated with landslide

mitigation. The City will only approve new development in areas of identified landslide hazard if such hazard can be appropriately mitigated.

S-9. Post Earthquake Inspections: Require post-earthquake building inspections of critical facilities, and restrict entry into compromised structures. Inspections shall be conducted when the earthquake intensity if VII or higher per the Modified Mercalli Intensity Scale. Require inspections as necessary in conjunction with other non-city public agencies and private parties for structural integrity of water storage facilities, storm drainage structures, electrical transmission lines, major roadways, bridges, elevated freeways, levees, canal banks, and other important utilities and essential facilities.

S-9a. Inspection List: Identify a list of facilities that would be inspected after a major earthquake. The list shall identify City-owned essential or hazardous facilities as defined by Category 1 and 2 of Table 16-K of the Uniform Building Code, and shall prioritize the list for inspection scheduling purposes in case of an earthquake.

S-13. Potential Hazardous Soils Conditions: Where development is proposed on sites with known previous contamination, sites filled prior to 1974 or sites that were historically auto service, industrial or other land uses that may have involved hazardous materials, evaluate such sites for the presence of toxic or hazardous materials. The requirements for site-specific investigation are contained in the Geotechnical Review Matrix.

S-13a. Potentially Hazardous Soils Map: Using the San Rafael environmental database, develop a map showing sites with known soil and groundwater contamination. Prepare a map to be available to the Community Development Department in order to identify new developments that warrant environmental investigation and testing.

S-13b. Hazardous Soils Cleanup: Require remediation and cleanup in accordance with regional and local standards in order to develop on sites where hazardous materials have impacted soil or groundwater. At a minimum, remediation and clean up of contaminated sites shall be in accordance with regional and local standards. The required level of remediation and clean-up shall be determined by the Fire Department based on the intended use of the site and health risk to the public. Require appropriate control measures in areas susceptible to erosion, in conjunction with proposed development. Erosion control measures and management practices should conform to the most recent editions of the Regional Water Quality Control Board's Erosion and Sediment Control Field Manual and the Association of Bay Area Governments' Manual of Standards for Erosion and Sediment Control or equivalent.

S-22a. Erosion Control Programs: Review and approve erosion control programs for projects involving grading one acre or more or 5,000 square feet of built surface as required by Standard Urban Stormwater Management Plans (SWMP). Evaluate smaller projects on a case-by-case basis.

S-22b. Grading During the Wet Season: Discourage grading during the wet season and require that development projects implement adequate erosion and/or sediment control and runoff discharge measures

Marin Countywide Plan

The Marin Countywide Plan contains a Built Environment Element, which identifies and assesses known conditions and seismic hazards. The Plan outlines goals, with corresponding policies and implementation programs. These goals, policies, and implementation programs are listed below.

Goal EH-2.1: Safety from Seismic and Geologic Hazards. Protect people and property from risks associated with seismic activity and geologic conditions.

Policy EH-2.1: Avoid Hazard Areas. Require development to avoid or minimize potential hazards from earthquakes and unstable ground conditions.

Implementing Program EH-2.a: Require Geotechnical Reports. Continue to require any applicant for land division, master plan, or development approval in a geologic hazard area to submit a geotechnical report prepared by a State-certified engineering geologist, in conformance with the State Seismic Hazards Mapping Act, that:

- evaluates soil, slope, and other geologic conditions;
- commits to appropriate and comprehensive mitigation measures sufficient to reduce risks to acceptable levels, including post-construction site monitoring, if applicable; and
- addresses on-site structural engineering, impact of the project on adjacent lands, and potential impacts of off-site conditions.

Implementing Program EH-2.b: Require Construction Certification. Require any work undertaken to correct slope instability or mitigate other geologic conditions to be supervised and certified by a geotechnical engineer and, when necessary, an engineering geologist.

Implementing Program EH-2.e: Retrofit County Buildings. Identify and remedy any County-owned structures in need of seismic retrofit or other geotechnical improvement, including by eliminating any potentially hazardous features and/or relocating buildings if necessary.

Implementing Program EH-2.f: Avoid Known Landslide Areas. Continue to prohibit development in landslide areas and on landslide-prone deposits on steep slopes, except where the required geotechnical report indicates that appropriate mitigation measures can stabilize the site for construction.

Implementing Program EH-2.g: Identify Compressible Soil Potential. Require that geotechnical reports for projects on land underlain by compressible materials (such as fill, bay mud, and marsh or slough areas) delineate locations where settlement will be greatest and subsidence may occur, and recommend site preparation and construction techniques necessary to reduce the risk and public liability to an acceptable level.

Implementing Program EH-2.h: Match Uses to Conditions. Amend the Development Code to limit uses in areas with high potential for slope instability or differential soil activity to those that would not be damaged by ground movement and that would provide minimum inducement to slope instability or differential settlement.

Implementing Program EH-2.i: Minimize Impacts of Site Alteration. Amend the Development Code to strictly limit the extent of any proposed fill, excavation, or grading activities that could create or exacerbate risks in areas susceptible to geologic hazards.

Implementing Program EH-2.j: Seek Supplemental Expertise. Continue to hire consultants expert in soils engineering as necessary for evaluating specific development proposed on bay mud and fill prone to differential settlement (County of Marin, 2004).

Novato SD

City of Novato General Plan

The City of Novato General Plan contains a Safety Element, which identifies and assesses known conditions and seismic hazards. The Plan outlines goals, with corresponding policies and implementation programs. These goals, policies, and implementation programs are listed below.

SF Objective 1: Reduce seismic hazards.

SF Policy 1 Seismic Hazards: Reduce the risk of loss of life, personal injury and damage to property resulting from seismic hazards.

SF Program 1.1: Continue to require geotechnical and engineering geology reports by consulting Certified Engineering Geologists and/or Registered Geotechnical Engineers for development proposals on sites in seismically and geologically hazardous areas and for all critical structures. These reports should include, but not be limited to: evaluation of and recommendations to mitigate the effects of ground shaking, landslides, surficial debris flows, expansive soils, subsidence and settlement, fault displacement, Bay mud areas, and all areas shown on SF Map 1 as damage level moderate or heavy. Reference must also be made to standard geological and geological hazards maps.

SF Program 1.2: Continue to require, as conditions of approval, measures to mitigate potential seismic hazards for structures.

SF Program 1.3: Continue to require professional inspection of foundation and excavation, earthwork and other geotechnical aspects of site development during construction on those sites specified in geologic, and geotechnical studies as being prone to moderate levels of seismic hazard, in accordance with the current version of the UBC.

SF Program 1.4: Continue to monitor and review existing critical, high priority buildings to ensure structural compliance with seismic safety standards.

SF Policy 2 Building in Areas with Significant Risk Potential: Discourage construction of high density residential, and other critical, high-occupancy or essential services buildings in high risk zones.

SF Program 2.1: Continue to require adherence to the UBC for Seismic Risk Zone 4 in order to protect against seismic hazards.

SF Program 2.2: Establish setbacks from active or potentially active fault traces for structures intended for human occupancy.

SF Objective 2: Minimize the risk of personal injury and property damage resulting from slope and soil instability.

SF Policy 3 Slope and Soil Instability: Continue to enforce existing regulations and procedures to identify potential hazards relating to geologic and soils conditions.

SF Program 3.1: Require evaluation of all slopes, unstable land, areas susceptible to liquefaction or settlement, and areas containing expansive soils for safety hazards prior to issuance of any discretionary approvals and require appropriate mitigation measures.

SF Program 3.2: Require that development in areas identified by SF Map 2: Slope Instability be evaluated and, as appropriate, supervised by a Certified Engineering Geologist or a registered Geotechnical Engineer.

SF Program 3.4: Require repair, stabilization, or avoidance of landslides, or areas of soil creep or possible debris flow as a condition of project approval (City of Novato, 1996).

Unincorporated Marin County

See LGVSD discussion.

SVCSD

City of Sonoma General Plan

The City of Sonoma General Plan (City of Sonoma, 1995) contains the following goals, objectives, and policies that would be applicable to the proposed project:

Goal PSE-1: Minimize risks to life and property posed by seismic and other geologic hazards.

Policy 2: The City shall continue to require, as conditions of project approval, the incorporation of measures which eliminate or reduce to acceptable levels identified risks associated with relevant geologic hazards.

Sonoma County General Plan

The Safety Element of the Sonoma County General Plan identifies the goals for reducing existing potential hazards and increasing a range of services relating to safety and health (Sonoma County, 1998). Various policies are applicable to geologic hazards within unincorporated Sonoma County and may be applicable to the proposed project.

Goal PS-1: Prevent unnecessary exposure of people and property to risks of damage or injury from earthquakes, landslides and other geologic hazards.

Objective PS-1.1: Continue to utilize available data on geologic hazards and associated risks.

Objective PS-1.2: Regulate new development to reduce the risks of damage and injury from known geologic hazards to acceptable levels.

The Sonoma County General Plan also has developed policies to protect mineral resources.

Goal RC-11: Provide for production of aggregates to meet local needs and contribute the County's share of demand in the North Bay production-consumption region. Manage aggregate resources to avoid needless resource depletion and ensure that extraction results in the fewest environmental impacts.

Objective RC-11.1: Use the Aggregate Resources Management Plan to establish priority areas for aggregate production and to establish detailed policies, procedures, and standards for mineral extraction.

Objective RC-11.2: Minimize and mitigate the adverse environmental effects of mineral extraction and reclaim mined lands.

Napa SD

City of Napa

HS Goal 1: To minimize the risk to life and property from seismic activity.

HS-1.2: The City shall discourage the siting of facilities necessary for emergency services, major utility lines and facilities, manufacturing plants using or storing hazardous materials, high occupancy structures (such as multi-family residences and large public assembly facilities), or facilities housing dependent populations (such as schools and convalescent centers) within areas subject to very strong, violent, or very violent ground shaking, as indicated in the ABAG Groundshaking Intensity Maps (Figure 8-1A and B), unless no alternative is available and adequate mitigation measures can be incorporated into the project.

HS-1.4: The City shall require special construction features in the design of structures where site investigations confirm potential seismic hazards.

HS Goal 2: To minimize the hazards to people and property caused by soil erosion and landslides.

HS-2.1: The City shall seek to minimize grading and impermeable surfaces in high-erosion areas. If grading or impermeable surfaces are necessary, they shall be properly engineered and drained to reduce runoff and erosion.

HS-2.2: The City shall consider natural landform contours and geologic conditions in the development of roadways and individual project design.

HS-2.3: The City shall continue to regulate development on hillsides to reduce the hazards posed by soil erosion and landslides.

HS-2.4: The City shall require that an erosion control plan be prepared and approved for development on slopes of 15 percent or greater. The plan should include limitations on vegetation removal, revegetation, and installation of other erosion and sedimentation control measures.

HS-2.5: The City shall continue to apply its Hillside Development Guidelines to properties in sensitive hillside locations.

Napa County General Plan

Goal SAF-2: To the extent reasonable, protect residents and businesses in the unincorporated area from hazards created by earthquakes, landslides, and other geologic hazards.

Policy SAF-8: Consistent with County ordinances, require a geotechnical study for new projects and modifications of existing projects or structures located in or near known geologic hazard areas, and restrict new development atop or astride identified active seismic faults in order to prevent catastrophic damage caused by movement along the fault. Geologic studies shall identify site design (such as setbacks from active faults and avoidance of on-site soil-geologic conditions that could become unstable or fail during a seismic event) and structural measures to prevent injury, death and catastrophic damage to structures and infrastructure improvements (such as pipelines, roadways and water surface impoundments not subject to regulation by the Division of Safety of Dams of the California Department of Water Resources) from seismic events or failure from other natural circumstances.

Policy SAF-9: As part of the review and approval of development and public works projects, planting of vegetation on unstable slopes shall be incorporated into project designs when this technique will protect structures at lower elevations and minimize the potential for erosion or landslides. Native plants should be considered for this purpose, since they can reduce the need for supplemental watering which can promote earth movement.

Policy SAF-10: No extensive grading shall be permitted on slopes over 15 percent where landslides or other geologic hazards are present unless the hazard(s) are eliminated or reduced to a safe level.

APPENDIX 3.2
Surface Hydrology

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to surface hydrology and the proposed project.

LGVSD

Marin Countywide Plan

The Marin Countywide Plan includes the following goals related to hydrology (Marin County, 2007):

> **Goal WR-1: Healthy Watersheds.** Achieve and maintain proper ecological functioning of watersheds, including sediment transport, groundwater recharge and filtration, biological processes, and natural flood mitigation, while ensuring high-quality water.
>
> > *Policy WR-1.1*: Protect Watersheds and Aquifer Recharge. Give high priority to the protection of watersheds, aquifer-recharge areas, and natural drainage systems in any consideration of land use.
> >
> > *Policy WR-1.2*: Restore and Enhance Watersheds. Support watershed restoration efforts, coordinate County watershed activities with efforts by other groups, and simplify permit acquisition for watershed restoration and enhancement projects.
> >
> > *Policy WR-1.3*: Improve Infiltration. Enhance water infiltration throughout watersheds to decrease accelerated runoff rates and enhance groundwater recharge. Whenever possible, maintain or increase a site's predevelopment infiltration to reduce downstream erosion and flooding.
> >
> > *Policy WR-1.4*: Protect Upland Vegetation. Limit development and grazing on steep slopes and ridgelines in order to protect downslope areas from erosion and to ensure that runoff is dispersed adequately to allow for effective infiltration.
>
> **Goal WR-3: Adequate Water for Wildlife and Humans.** Ensure that the available supply of surface and groundwater is used responsibly, so that the needs of both wildlife and human populations are met.
>
> > *Policy WR-3.1*: Conserve Water and Develop New Sustainable Sources. Reduce the waste of potable water through efficient technologies, conservation efforts, and design and management practices, and by better matching the source and quality of water to the user's needs.

Policy WR-3.2: Mitigate Water Demand in New Development. Assess and mitigate the impacts of new development on potable water supplies and water available for wildlife.

Novato SD

City of Novato General Plan

The City of Novato General Plan includes the following objectives and policies related to surface water (City of Novato, 2003):

EN Objective 1: Preserve, protect, and enhance streams and other bodies of water.

EN Policy 1 Ecology of Creeks and Streams. Preserve and enhance the ecology of creeks and streams.

EN Policy 4 Erosion Control. Minimize soil disturbance and surface runoff in the Stream Protection Zones. Pursuant to the City's grading ordinance, work in and adjacent to the zones shall be conducted during the dry season only, at times when the Community Development Department determines that surface runoff will be minimal or containable.

EN Objective 10: Preserve, protect, and enhance water resources.

EN Policy 35 Watershed Management. Minimize the effects of pollution in stormwater runoff. Retain and restore where feasible the natural hydrological characteristics of watersheds in the Novato Area of Interest.

SVCSD

City of Sonoma General Plan

The City of Sonoma 2020 General Plan lists the following goals, policies, and implementation measures to protect the water resources in the City of Sonoma (City of Sonoma, 2004b):

Goal ERE-2: Identify, preserve, and enhance important habitat areas and significant environmental resources.

Policy 2.4: Protect Sonoma Valley watershed resources, including surface and ground water supplies and quality.

Implementation measures include:

2.4.1. Prepare and implement a comprehensive strategy for water conservation and the protection of water quality, including quantified objectives, with the goal of producing a Water Element for the General Plan.

2.4.2. Update the Development Code to ensure that new development incorporates applicable "best-management" construction and post-construction practices and design features, including maintenance programs where warranted, that provide quantified results in reducing run-off and protecting water quality.

2.4.3. Work with the Sonoma County Water Agency, the Valley of the Moon Water District, the Sonoma Ecology Center and other appropriate agencies to monitor groundwater resources and to develop a ground water management plan, including guidelines and standards for preserving and enhancing valley watershed and surface and groundwater resources.

2.4.4. Continue the street sweeping program and extend it as necessary to serve new development.

Sonoma County General Plan

The Sonoma County General Plan lists goals to protect water resources in the County (Sonoma County, 1998). The following goals apply to the proposed project.

Goal RC-3: Conserve, enhance, and manage water resources, protect their quality, and assure an adequate long term supply of water for domestic, fishing, industrial and agricultural use.

Objective RC-3.1: Preserve watersheds and groundwater recharge areas by avoiding the placement of potential pollution sources in areas with high percolation rates.

Objective RC-3.2: Provide development standards in recharge areas to maintain groundwater supplies.

Objective RC-3.3: Preserve and enhance the quality of surface and groundwater resources.

Objective RC-3.4: Insure that land uses in rural areas be consistent with the availability of groundwater resources.

Goal RC-2: Promote and encourage soil conservation and management practice that maintain the productivity of soil resources.

Objective RC-2.1: Ensure that permitted uses are compatible with reducing potential damage due to soil erosion.

Objective RC-2.2: Establish ways to prevent soil erosion and restore areas damaged by erosion.

Napa SD

Napa County General Plan

The Napa County General Plan includes the following water resources goals related to surface water (Napa County, 2008):

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-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.

Related policies include:

Policy CON-41: The County will work to protect Napa County's watersheds and public and private water reservoirs to provide for the following purposes: a) Clean drinking water for public health and safety; b) Municipal uses, including commercial, industrial and domestic uses; c) Support of the eco-systems; d) Agricultural water supply; e) Recreation and open space; and f) Scenic beauty.

Policy CON-42: The County shall work to improve and maintain the vitality and health of its watersheds. Specifically, the County shall: …

d) Support environmentally sustainable agricultural techniques and best management practices (BMPs) that protect surface water and groundwater quality and quantity (e.g., cover crop management, integrated pest management, informed surface water withdrawals and groundwater use).

e) Promote and support the use of recycled water wherever feasible, including the use of tertiary treated water, to help improve supply reliability and enhance groundwater recharge.

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.

APPENDIX 3.3
Groundwater Resources

Local

There are three key methods used to provide groundwater management in California:

- Management by local agencies under authority granted in the California Water Code or other applicable State statutes;
- Local government groundwater ordinances or joint powers agreements; and
- Court adjudications (DWR 2003).

There are no adjudicated basins within the study area. Local groundwater management plans and county ordinances vary by authority/agency and region but generally involve provisions to limit or prevent groundwater overdraft, regulate transfers, and protect groundwater quality. The Sonoma Valley Groundwater Management Plan (SCWA 2007) is the only groundwater management plan in effect within the study area. Napa County is currently the only county within the study area with a groundwater management ordinance. Napa, Sonoma, and Marin Counties regulate groundwater use and quality by requiring permits prior to the construction, reconstruction, or destruction of groundwater wells in order to protect groundwater quality. Local cities in the study area have generally adopted existing county well requirements and require a permit or other type of approval prior to the construction of any new groundwater well.

Sonoma Valley Groundwater Management Plan

In November 2007, SCWA adopted the *Sonoma Valley Groundwater Management Plan (SCWA 2007)*. The plan covers the entire Sonoma Creek watershed and identifies actions to sustain groundwater resources for future generations. The key goal of the plan is to "locally manage, protect, and enhance groundwater resources for all beneficial uses, in a sustainable, environmentally sound, economical, and equitable manner for generations to come" (SCWA 2007). In order to achieve groundwater sustainability, the plan suggests the increased use of recycled water to offset groundwater pumping (SCWA 2007).

Napa County Groundwater Conservation Ordinance

The Napa County Groundwater Conservation Ordinance regulates extraction and use of groundwater in Napa County and prohibits extraction for wasteful or non-beneficial purposes. To obtain a groundwater permit, single-family homes with associated landscaping less than two acres in size are required to install a meter on the well serving the parcel. The meter must be read every

six months and readings must be reported to the Napa County Public Works Department. Parcels over 2 acres in size are limited to a maximum of 0.60 AFY. Agricultural developments in the groundwater–depleted MST are (see **Figure 3.3-2**) required to obtain a groundwater permit, unless specifically exempt. Permit conditions for agricultural parcels greater than two acres within the groundwater deficient area require wells have meters installed and limit the user to 0.30 AF per acre per year, calculated as a three-year average. Groundwater wells serving agricultural areas outside the MST area do not require permitting (13 Napa County Code).

Napa County issues groundwater permits for agricultural uses based on "no net increase" and "fair share" standards. The County encourages applicants to reduce their impacts on the MST basin by giving up an existing groundwater right, reducing consumption, or importing water from outside the area. If the additional water requested does not meet the "no net increase" standard, additional environmental review is required to determine the potential impacts to the basin. The "fair share" standard limits the user to 0.30 AF per acre per year (County of Napa 2005).

Local Groundwater Management Goals and Policies

County and city governments in the study area have included specific goals in their general plans to protect groundwater quantity and quality.

LGVSD

City of San Rafael General Plan

There are no specific goals or policies that pertain to groundwater in the San Rafael General Plan.

Marin Countywide Plan

> *GOAL WR-1. Healthy Watersheds*: Achieve and maintain proper ecological functioning of watersheds, including sediment transport, groundwater recharge and filtration, biological processes, and natural flood mitigation, while ensuring high-quality water.
>
> *GOAL WR-2. Clean Water*: Ensure that surface and groundwater supplies are sufficiently unpolluted to support local natural communities, the health of the human population, and the viability of agriculture and other commercial uses.
>
> *GOAL WR-3. Adequate Water for Wildlife and Humans*: Ensure that the available supply of surface and groundwater is used responsibly, so that the needs of both wildlife and human populations are met.

Novato SD

City of Novato General Plan

There are no specific goals or policies that pertain to groundwater in the City of Novato General Plan.

Marin Countywide Plan

Applicable portions of the Marin Countywide Plan are described above for LGVSD.

SVCSD

City of Sonoma General Plan

The City of Sonoma General Plan identifies the following groundwater goals and objectives:

> **Goal RC-3:** Conserve, enhance, and manage water resources, protect their quality, and assure an adequate long term supply of water for domestic, fishing, industrial and agricultural use.
>
> > *Objective RC-3.1*: Preserve watersheds and groundwater recharge areas by avoiding the placement of potential pollution sources in areas with high percolation rates.
> >
> > *Objective RC-3.2*: Provide development standards in recharge areas to maintain groundwater supplies.
> >
> > *Objective RC-3.3*: Preserve and enhance the quality of surface and groundwater resources.
> >
> > *Objective RC-3.4*: Insure that land uses in rural areas be consistent with the availability of groundwater resources.
>
> The following policies, in addition to those in the Land Use and Public Facilities and Services Elements, shall be used to carry out these objectives:
>
> > *RC-3a*: Grading, filling and construction should not substantially reduce or divert any stream flow that would affect groundwater recharge.
> >
> > *RC-3c*: Continue to encourage research on and monitoring of local groundwater, watersheds, streams, and aquifer recharge areas in order to determine their water supply value.
> >
> > *RC-3d*: Continue to encourage the construction of wastewater disposal systems designed to reclaim and reuse treated wastewater on agricultural crops, and for other irrigation and wildlife enhancement projects (Sonoma County 1998).

Sonoma County General Plan

The Sonoma County General Plan identifies the following groundwater goals and objectives:

> **Goal RC-3:** Conserve, enhance, and manage water resources, protect their quality, and assure an adequate long term supply of water for domestic, fishing, industrial and agricultural use.
>
> > *Objective RC-3.1*: Preserve watersheds and groundwater recharge areas by avoiding the placement of potential pollution sources in areas with high percolation rates.
> >
> > *Objective RC-3.2*: Provide development standards in recharge areas to maintain groundwater supplies.
> >
> > *Objective RC-3.3*: Preserve and enhance the quality of surface and groundwater resources.

Objective RC-3.4: Insure that land uses in rural areas be consistent with the availability of groundwater resources.

The following policies, in addition to those in the Land Use and Public Facilities and Services Elements, shall be used to carry out these objectives:

RC-3a: Grading, filling and construction should not substantially reduce or divert any stream flow that would affect groundwater recharge.

RC-3b: Require groundwater monitoring programs for all large scale commercial and industrial uses using wells.

RC-3c: Continue to encourage research on and monitoring of local groundwater, watersheds, streams, and aquifer recharge areas in order to determine their water supply value.

RC-3d: Continue to encourage the construction of wastewater disposal systems designed to reclaim and reuse treated wastewater on agricultural crops, and for other irrigation and wildlife enhancement projects.

*RC-3e***:** Encourage wastewater disposal methods which minimize reliance on discharges into natural waterways. If discharge is proposed, review and comment on projects and environmental documents and request that projects maximize reclamation, conservation and reuse programs to minimize discharges and protect water quality and aquifer recharge areas.

RC-3f: The Environmental Health Department shall review all subdivisions using septic systems so that leachants do not contaminate groundwater recharge areas. Consider on-site wastewater management districts in important recharge areas.

RC-3g: Consider on-site wastewater management districts in areas with septic problems.

*RC-3h***:** Require proof of adequate groundwater in Class III[1] and IV water areas. Require test wells or the establishment of community water systems in Class IV water areas. Test wells may be required in Class III areas. Deny discretionary applications unless a geologic report establishes that groundwater supplies are adequate and will not be adversely impacted by the cumulative amount of additional development.

[1] In Sonoma County, a four-tier classification system is used to indicate general areas of groundwater availability: Class I is the major groundwater basins; Class II is major natural recharge areas; Class III is marginal groundwater availability areas; and Class IV is areas with low or highly variable water yield (Sonoma County 2007a).

Napa SD

City of Napa General Plan

The City of Napa General Plan identifies the following groundwater goals and policies:

Goal NR-4: To protect and enhance surface water and groundwater quality.

Policy NR-4.1: The City shall support the maintenance and improvement of surface and ground water quality.

Napa County General Plan

The Napa County General Plan identifies the following groundwater policies:

Policy CON-2: d) Encourage the use of recycled water, particularly within groundwater deficient areas, for vegetation enhancement, frost protection, and irrigation to enhance agriculture and grazing.

Policy CON-42: e) Promote and support the use of recycled water wherever feasible, including the use of tertiary treated water, to help improve supply reliability and enhance groundwater recharge.

Policy CON-51: Recognizing that groundwater best supports agricultural and rural uses, the County discourages urbanization requiring net increases in groundwater use and discourages incorporated jurisdictions from using groundwater except in emergencies or as part of conjunctive-use programs that do not cause or exacerbate conditions of overdraft or otherwise adversely affect the County's groundwater resources.

Policy CON-52: Groundwater is a valuable resource in Napa County. The County encourages responsible use and conservation of groundwater and regulates groundwater resources by way of its groundwater ordinances.

Policy CON-61: a) Environmentally sustainable water supply projects should receive priority attention, including development of sustainable alternative water supplies such as the use of recycled water or other options for non-potable uses in Carneros and the MST groundwater basins.

Policy CON-62: As stated in Policy AG/LU-74, the County supports the extension of recycled water to the Coombsville area to reduce reliance on groundwater in the MST groundwater basin and exploration of other alternatives. Also, the County shall identify and support ways to utilize recycled water for irrigation and non-potable uses to offset dependency on groundwater and surface waters and ensure adequate wastewater treatment capacity through the following measures:

a) Require (as part of continued implementation of County Code Title 13 Division 2 provisions associated with sewer systems) verification of adequate wastewater service for all development projects prior to their approvals. This requirement includes coordination with wastewater service purveyors to verify adequate capacity and infrastructure either exists or will be available prior to operation of the development project.

b) Use wastewater treatment and reuse facilities where feasible to reclaim, reuse, and deliver treated wastewater for irrigation and possible potable use depending on wastewater treatment standards.

c) Require proposals for non-residential construction in the Airport Industrial Area and lower Milliken-Sarco/Tulucay Creeks Area to incorporate dual plumbing to allow for the use of non potable/recycled water when such water becomes available.

d) Encourage the use of non-potable/recycled water wherever recycled water is available and require the use of recycled water for golf courses where feasible.

APPENDIX 3.4
Water Quality

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to water quality and the proposed project.

LGVSD

City of San Rafael General Plan

The City of San Rafael General Plan lists the following goals, and policies to protect the water resources in the City of San Rafael (City of San Rafael, 2004):

> *AW-7. Local, State and Federal Standards.* Continue to comply with local, state and federal standards for water quality.
>
> *AW-7a. Countywide Stormwater Program.* Continue to participate in the countywide stormwater program and comply with its performance standards.
>
> *AW-7b. Stormwater Runoff Measures.* Continue to incorporate measures for stormwater runoff control and management in construction sites.
>
> *AW-7c. Water Quality Improvements in Canal and Other Waterways*. Support water quality improvement efforts in the San Rafael Canal, creeks, and drainageways in accordance with standards of the State Water Quality Control Board or any agencies with jurisdiction.
>
> *AW-8. Reduce Pollution from Urban Runoff*. Address nonpoint source pollution and protect receiving waters from pollutants discharged to the storm drain system by requiring Best Management Practices quality.
>
> - Support alternatives to impervious surfaces in new development, redevelopment, or public improvement projects to reduce urban runoff into storm drain system, creeks, and the Bay.
> - Require that site designs work with the natural topography and drainages to the extent practicable to reduce the amount of grading necessary and limit disturbance to natural water bodies and natural drainage systems.
> - Where feasible, use vegetation to absorb and filter fertilizers, pesticides and other pollutants.

AW-8a. Proper Disposal of Pollutants. Continue to promote proper disposal of pollutants to the sanitary sewer or hazardous waste facilities rather than to the storm drainage system.

AW-8b. Compliance by Contractors. Continue to require contractors to comply with accepted stormwater pollution prevention planning practices for all projects subject to erosion potential. Also, continue to require the proper use, storage and disposal of on-site materials.

AW-8c. System Improvements. Improve storm drainage performance by constructing new system improvements. Evaluate stormwater volumes when replacing undersized or otherwise inadequate lines with larger or parallel lines.

AW-8d. Pesticide and Fertilizer Management. On City property, encourage the appropriate reduction of pesticides and fertilizers to the maximum extent feasible. Ensure that the application of pesticides on City property is accomplished in accordance with all applicable rules and regulations.

AW-8e. Public Water Management. Review areas where public water management procedures are used to convey stormwater to the stormdrain system, including streets, which also convey stormwater to the stormdrain system.

City of Novato General Plan

The City of Novato General Plan lists the following goals, policies and programs to protect the water resources in the City of Novato (City of Novato, 1996):

Goal: Preserve and improve the quality of life in Novato. Conserve and where appropriate restore the natural environment and strive for high quality in the built environment that complements the natural environment.

EN Policy 35 Watershed Management. Minimize the effects of pollution in stormwater runoff. Retain and restore where feasible the natural hydrological characteristics of watersheds in the Novato Area of Interest.

EN Program 35.1: Continue to implement the Clean Stormwater Ordinance. As budget allows, increase storm drain maintenance to reduce urban runoff pollutants and increase street sweeping programs.

EN Policy 36 Point Source Pollution. Continue to prohibit discharges of any substances other than stormwater and prevent illicit dumping of wastes into storm drains and creeks.

EN Program 36.1: Investigate reports or evidence of illicit discharges or dumping into creeks or storm drains and work with the appropriate state and local agencies to determine causes and take measures to prevent such occurrences.

*EN Policy 37 Using CEQA to Reduce Water Quality Imp*acts. Use the provisions of the California Environmental Quality Act (CEQA) process to identify measures to prevent erosion, sedimentation, and urban runoff pollution resulting from development.

EN Program 37.1: Include analysis and mitigation measures to reduce the harmful effects of runoff as part of project review.

Marin Countywide Plan

The Marin Countywide Plan lists goals and policies to protect the water resources including water quality in the County (Marin County, 2007). The following goals apply to the proposed project.

> **Goal WR-2 Clean Water**. Ensure that surface and groundwater supplies are sufficiently unpolluted to support local natural communities, the health of the human population, and the viability of agriculture and other commercial uses.
>
> > *Policy WR-2.1*: Reduce Toxic Runoff. Reduce the volume of urban runoff from pollutants — such as pesticides from homes, golf courses, cleaning agents, swimming pool chemicals, and road oil — and of excess sediments and nutrients from agricultural operations.
> >
> > *Policy WR-2.2*: Reduce Pathogen, Sediment, and Nutrient Levels. Support programs to maintain pathogen and nutrient levels at or below target levels set by the Regional Water Quality Control Board, including the efforts of ranchers, dairies, agencies, and community groups to address pathogen, sediment, and nutrient management in urban and rural watersheds.
> >
> > *Policy WR-2.3*: Avoid Erosion and Sedimentation. Minimize soil erosion and discharge of sediments into surface runoff, drainage systems, and water bodies. Continue to require grading plans that address avoidance of soil erosion and on-site sediment retention. Require developments to include on-site facilities for the retention of sediments, and, if necessary, require continued monitoring and maintenance of these facilities upon project completion.
> >
> > *Policy WR-2.4*: Design County Facilities to Minimize Pollutant Input. Design, construct, and maintain County buildings, landscaped areas, roads, bridges, drainages, and other facilities to minimize the volume of toxics, nutrients, sediment, and other pollutants in stormwater flows, and continue to improve road maintenance methods to reduce erosion and sedimentation potential.
> >
> > *Policy WR-2.5*: Take Part in Water Quality Education. Continue to support local stormwater and community watershed group efforts to inform the public about practices and programs to minimize water pollution.

Novato SD

City of Novato General Plan

The goals and policies to protect the water resources including water quality presented in the Novato General Plan described above for the LGVSD service area would also apply to activities implemented by the proposed project in the Novato SD service area.

Marin Countywide Plan

The goals and policies to protect the water resources including water quality presented in the Marin Countywide Plan described above for the LGVSD service area would also apply to activities implemented by the proposed project in the Novato SD service area.

SVCSD

City of Sonoma General Plan

The City of Sonoma General Plan lists the following goals, policies, and implementation measures to protect the water resources in the City of Sonoma (City of Sonoma 2006):

Goal ERE-2: Identify, preserve, and enhance important habitat areas and significant environmental resources.

Policy 12: The City shall support efforts in Sonoma Valley to protect surface and groundwater resources and the valley watershed.

Policy 13: Development regulations shall minimize flood hazards and maximize erosion control consistent with soil conservation practices and watershed protection.

Implementation measures include:

1. Including building setback standards and preservation and restoration opportunities for creeks and creek habitats in the preparation of the Town Design Guidelines.

2. Establish standard conditions of project approval minimizing construction-related erosion through the use of sediment traps, seasonal grading restrictions, construction staging, and the use of groundcovers.

3. Work with the Sonoma Valley Watershed Council and affected agencies to develop guidelines that preserve and enhance surface and groundwater resources and the valley watershed.

Sonoma County General Plan

The Sonoma County General Plan lists goals to protect the water resources including water quality in the County (Sonoma County, 1989). The following goals apply to the proposed project.

Goal RC-3: Conserve, enhance, and manage water resources, protect their quality, and assure an adequate long term supply of water for domestic, fishing, industrial and agricultural use.

Objective RC-3.1: Preserve watersheds and groundwater recharge areas by avoiding the placement of potential pollution sources in areas with high percolation rates.

Objective RC-3.2: Provide development standards in recharge areas to maintain groundwater supplies.

Objective RC-3.3: Preserve and enhance the quality of surface and groundwater resources.

Objective RC-3.4: Insure that land uses in rural areas be consistent with the availability of groundwater resources.

Napa SD

City of Napa General Plan

The City of Napa General Plan lists the following goals and policies to protect the water resources in the City of Napa (City of Napa, 1995):

Goal NR-4: To protect and enhance surface water and ground water quality.

Policy NR-4.1: The City shall support the maintenance and improvement of surface and ground water quality.

Policy NR-4.2: The City shall support the maintenance and improvement of water quality in the Napa River.

Policy NR-4.3: The City shall support the monitoring and assessment of the effects of dredging in the Napa River.

Policy NR-4.4: The City shall adopt standards and regulations for the reduction and/or elimination of nonpoint sources of pollution.

Policy NR-4.5: The City shall maintain and strengthen where feasible current efforts to eliminate point sources of pollution.

Policy NR-4.6: The City shall cooperate with Napa County to maintain the current program to identify and remove leaking underground storage tanks.

Policy NR-4.7: Encourage design of projects to avoid covering creeks and drainageways whenever possible.

Napa County General Plan

The Napa County General Plan lists goals and policies to protect the water resources including water quality in the County (Napa County, 2008). The following goals apply to the proposed project.

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).

Policy CON-47: The County shall comply with applicable Water Quality Control/Basin Plans as amended through the Total Maximum Daily Load (TMDL) process to improve water quality. In its efforts to comply, the following may be undertaken:

a) Monitoring water quality in impaired waterbodies identified by the Regional Water Quality Control Board(s).

b) Addressing failing septic systems in the vicinity of Murphy, Browns Valley, and Salvador Creeks and throughout the County, should they be found to exist.

c) Retrofitting County-maintained roads to reduce sediment caused by runoff.

d) Supporting voluntary habitat restoration and bank stabilization efforts, with particular focus on the main stem and main tributaries of the Napa River.

e) Ensuring continued effectiveness of the National Pollution Discharge Elimination System (NPDES) program and storm water pollution prevention.

f) Ensuring continued effectiveness of the County's Conservation Regulations related to vineyard projects and other earth-disturbing activities.

g) Addressing effects related to past and current mining, grazing, and other activities to the extent feasible.

h) Amending the County's Conservation Regulations or County Code to address excessive sediment delivered to waterways as required by state law, particularly as it relates to private roads and rural unimproved (i.e., dirt or gravel) roads.

i) Developing outreach and education programs to inform land owners and managers about improving surface water quality (e.g., rural and private road maintenance, soil and vegetation retention, construction site management, runoff control, etc.) and cooperating with other governmental and non-governmental agencies seeking to establish waiver or certification programs.

Goal CON-9: Control urban and rural storm water runoff and related nonpoint source pollutants, reducing to acceptable levels pollutant discharges from land-based activities throughout the county.

Policy CON-48: Proposed developments shall implement project-specific sediment and erosion control measures (e.g., erosion control plans and/or stormwater pollution prevention plans) that maintain pre-development sediment erosion conditions or at minimum comply with state water quality pollution control (i.e., Basin Plan) requirements and are protective of the County's sensitive domestic supply watersheds. Technical reports and/or erosion control plans that recommend site-specific erosion control measures shall meet the requirements of the County Code and provide detailed information regarding site specific geologic, soil, and hydrologic conditions and how the proposed measure will function.

Policy CON-49: The County shall develop and implement a water quality monitoring program (or programs) to track the effectiveness of temporary and permanent Best Management Practices (BMPs) to control soil erosion and sedimentation within watershed areas and employ corrective actions for identified water quality issues (in violation of Basin Plans and/or associated TMDLs) identified during monitoring.

APPENDIX 3.4A

Recycled Water Users in California and Microconstituents and Pharmaceuticals

This appendix provides a list of examples of recycled users throughout California and information on microconstituents and pharmaceuticals related to recycled water.

WHAT YOU SHOULD KNOW ABOUT RECYCLED WATER

Recycled Water—Examples of Expanding Uses Throughout California

Growing rapidly, recycled water is used in more than 190 cities and communities throughout California. Here is a sampling of recycled water use throughout the state:

NORTHERN COAST/BAY AREA

ANGUIN: agricultural irrigation

ANTIOCH: industrial

ARCATA: freshwater marsh enhancement

BODEGA BAY: golf course, landscape irrigation

CALISTOGA: vineyard, landscape, and golf course, agricultural irrigation

CONCORD: golf course, landscape irrigation

CRESCENT CITY: landscape irrigation

DALY CITY: golf course, landscape irrigation

DUBLIN: landscape, park, school, and median irrigation

FAIRFIELD: agricultural irrigation

FERNDALE: pasture irrigation

FORT BRAGG: vineyard, landscape irrigation

GILROY: flower and vegetable seed, Christmas tree farm, and landscape irrigation

GUALALA: landscape irrigation

HAYWARD: golf course irrigation and wildlife habitat enhancement

LAKEPORT: pasture irrigation

MARTINEZ: landscape irrigation, industrial irrigation,wildlife habitat enhancement

MCKINLEYVILLE: agricultural irrigation

MILL VALLEY: landscape irrigation

MILPITAS: landscape irrigation

MONTAGUE: agricultural irrigation

MOUNTAIN VIEW: wildlife habitat enhancement

MORGAN HILL: flower and vegetable seed, Christmas tree farm, and landscape irrigation

NAPA: parks, cemeteries, vineyard and golf course irrigation

NOVATO: golf course, pasture and agricultural irrigation

OAKLAND: landscape, golf course, median, and freeway irrigation

PALO ALTO: golf course, landscape irrigation

PETALUMA: agricultural, landscape, tree and pasture irrigation

PLEASANTON: landscape irrigation

PLEASANT HILL: landscape, golf course irrigation

RED BLUFF: freeway & landscape irrigation

REDDING: wash down log decks & school, landscape, and pasture irrigation

RICHMOND: cooling tower, industrial and landscape irrigation, golf course

ROHNERT PARK: golf course, school, park, and landscape irrigation

SANTA CLARA: landscape, golf course, park, school, median, and cemetery irrigation

SAN FRANCISCO: golf course and landscape irrigation

SAN JOSE: golf course, park, school, and median landscaping, industrial cooling, landscape, agricultural irrigation

SAN LEANDRO: landscape, median, and golf course irrigation

SAN LORENZO: landscape irrigation

SAN MATEO: agricultural irrigation

SAN RAFAEL: schoolyard, landscape, cemetery, cooling tower, industrial, and agricultural irrigation, toilet flushing, car washes

SAN RAMON: landscape, park, school, and median landscaping

SANTA ROSA: greenbelt, golf course, crop, vineyard, landscape, pasture and agricultural irrigation, geothermal well field recharge

SCOTTS VALLEY: Large landscape irrigation including parks and schools

SMITH RIVER: agricultural irrigation

SONOMA: crop, vineyard, blueberry and other agricultural irrigation, landscape irrigation, wildlife habitat enhancement

ST HELENA: vineyard, landscape, and golf course irrigation

SUNNYVALE: landscape, golf course, park, and school irrigation

SUSANVILLE: alfalfa irrigation

TERRA LINDA: Parks, athletic fields, public landscaping

TIBURON: landscape irrigation

UNION CITY: wildlife habitat enhancement

WEED: agricultural irrigation

WESPORT: agricultural irrigation

WILLITS: agricultural irrigation

WINDSOR: residential landscape irrigation, agricultural and landscape irrigation

YOUNTVILLE: agricultural irrigation

CENTRAL COAST

ATASCADERO: golf course, landscape irrigation

CAMBRIA: fodder feed for a cattle operation

CARMEL: golf course, park, landscape irrigation

CASTROVILLE: artichoke and other food crops irrigation

DAVENPORT: Brussels sprouts irrigation

CARMEL: landscape irrigation and wildlife habitat enhancement

GOLETA: golf course, agricultural and landscape irrigation

GUADALUPE: pasture, landscape irrigation

LOMPOC: corn and agricultural irrigation

MISSION HILLS: agricultural irrigation

MONTEREY: golf course, park, landscape and agricultural irrigation

SAN LUIS OBISPO: golf course, crop, landscape and agricultural irrigation

SANTA BARBARA: landscape and agricultural irrigation, golf course, park, schools, freeway median landscaping, hotel landscaping, zoo landscaping, cooling towers.

SANTA CRUZ: industrial, landscape and agricultural irrigation

SANTA MARIA: pasture & agricultural irrigation

SOLVANG: pasture and agricultural irrigation

UPLANDS: landscape irrigation

WATSONVILLE: artichokes, lettuce and other food crops and landscape irrigation

CENTRAL VALLEY

AUBURN: agricultural irrigation

BAKERSFIELD: fiber, fodder, and grain crop irrigation, hay irrigation, golf course irrigation

CERES: landscape irrigation

COALINGA: crop irrigation

CHOWCHILLA: cotton irrigation

CORCORAN: alfalfa and corn irrigation

DELANO: alfalfa and grain irrigation

EXETER: plum irrigation

FARMERSVILLE: pasture irrigation

FRESNO: wine grape irrigation, alfalfa and other crop irrigation, landscape irrigation

GALT: pasture irrigation

GRASS VALLEY: agricultural irrigation

HANFORD: cotton irrigation

LEMOORE: cotton and fodder irrigation

LINCOLN: agricultural irrigation

LIVERMORE: golf course, landscape, and freeway irrigation and fire protection

LODI: corn and other agricultural irrigation, boiler feed at power plant, fish rearing ponds

LOS BANOS: pasture irrigation

LOYALTON: agricultural irrigation

MADERA: crop, golf course, pasture irrigation

MANTECA: orange groves, dairy feed alfalfa, and corn and agricultural irrigation

MERCED: wetland/wildlife habitat enhancement

MODESTO: agricultural irrigation

OROVILLE: cooling tower

PATTERSON: agricultural irrigation

PORTERVILLE: alfalfa and landscape irrigation

RANCHO MURIETA: landscape irrigation

ROSEVILLE: landscape, golf course irrigation

SELMA: cotton, wheat, plum orchard irrigation

TAFT: alfalfa irrigation

TULARE: crop and landscape irrigation

TURLOCK: agricultural irrigation

WASCO: alfalfa, cotton, sugar beet irrigation

WHAT YOU SHOULD KNOW ABOUT RECYCLED WATER

Recycled Water—Examples of Expanding Uses Throughout California

SIERRA/SIERRA FOOTHILLS

AMADOR: pasture irrigation

ANGEL'S CAMP: pasture, landscape irrigation

CALIFORNIA CITY: landscape irrigation

EDWARDS AIR FORCE BASE: landscape irrigation

EL DORADO HILLS: golf course and landscape irrigation

GROVELAND: golf course, landscape irrigation

JAMESTOWN: landscape, crop, pasture and other agricultural irrigation

MARYSVILLE: landscape irrigation

RIDGECREST: landscape irrigation

SOUTH LAKE TAHOE: pasture, landscape irrigation

SUSANVILLE: agricultural irrigation

TUOLUMNE: agricultural irrigation

SOUTHERN CALIFORNIA

ANTELOPE VALLEY: park irrigation and recreational ponds

BARSTOW: alfalfa other agricultural irrigation

BIG BEAR: agricultural irrigation

BISHOP: pasture and landscape irrigation

BURBANK: power plant cooling, landscape, park, school, freeway median landscaping

CALABASAS: park, median, freeway, school, golf course, landscape irrigation

CALIPATRIA: wildlife habitat

CAMARILLO: lemons and seed, landscape, and pasture irrigation

CAMP PENDLETON: golf course and landscape irrigation

CARDIFF: landscape irrigation, other mixed types

CARLSBAD: crop and landscape irrigation, groundwater recharge from Encina WRP

CERRITOS: (from LACSD Los Coyotes WRP)

CITY OF INDUSTRY: LACSD San Jose WRP

CITY OF OCEANSIDE

CITY OF ESCONDIDO

COACHELLA VALLEY: landscape and agricultural irrigation

CORONA: landscape irrigation

COSTA MESA: golf course, landscape irrigation

CRESTLINE: agricultural, landscape, and industrial irrigation

DANA POINT: landscape, school, median irrigation and streetscapes

DEATH VALLEY: golf course irrigation

DEL MAR: landscape irrigation

EL SEGUNDO: golf course, landscape irrigation

ELSINORE: landscape irrigation, wildlife habitat enhancement, lake stabilization water

ENCINITAS: agricultural irrigation

ESCONDIDO: industrial, landscape, and crop irrigation, recreational impoundment

FALLBROOK: agricultural, landscape irrigation

FOUNTAIN VALLEY: seawater barrier

GOLETA: toilet flushing, large landscape irrigation, including parks and schools

GLENDALE: golf course, cemetery, freeway irrigation, landscape, industrial & cooling tower, LA-Glendale WRP

INDIAN HILLS: agricultural irrigation, wildlife habitat

INDIO: crop and fodder irrigation

INGLEWOOD: park, median, freeway, school, golf course, cemetery, landscape irrigation

INLAND EMPIRE: agricultural, landscape, industrial irrigation, and other mixed types

IRVINE: golf course, landscape, agricultural irrigation, and other mixed types

IRVINE RANCH WATER DISTRICT: Tustin, Los Alisos and Newport Beach are all part of IRWD system serving agricultural irrigation, golf courses, landscape, commercial cooling towers, toilet flushing & industrial applications.

LA CANADA FLINTRIDGE: LACSD Lanterman Plant, golf course irrigation

LAGUNA BEACH: golf course and nursery plant irrigation, landscape irrigation

LAGUNA NIGUEL: landscape irrigation

LAGUNA HILLS: golf course and landscape irrigation

LAKE ARROWHEAD: crop irrigation

LAKESIDE: agricultural irrigation

LANCASTER: wildlife refuge, recreational impoundment, agricultural and landscape irrigation

LONG BEACH: LACSD Long Beach WRP, irrigation and industrial for THUMS Islands, golf course, landscape, park, playground, school, and freeway irrigation

LOS ANGELES: golf course, landscape, freeway, school, park, and cemetery irrigation, concrete mix, water for carpet dying, fire protection, and dust control

LOS ANGELES COUNTY: joint recharge project with WRD using LACSD San Jose Creek and Whittier Narrows effluent

LOS ANGELES MUNICIPAL WATER DISTRICT: LACSD San Jose Creek WRP,

MISSION VIEJO: landscape irrigation

MORENO VALLEY: landscape irrigation

NEWPORT BEACH: golf course, freeway, school, park, and landscape irrigation

OCEANSIDE: landscape irrigation and wetland/wildlife enhancement

ORANGE: industrial, agricultural, and landscape irrigation

ORANGE COUNTY: Joint OCWD & OCSD groundwater replenishment system, recharge project & seawater barrier

PALMDALE: crop and agricultural irrigation, Christmas tree farm irrigation

PALM DESERT: golf course, landscape irrigation

PALM SPRINGS: golf course, landscape, park, schools, freeway, and median landscaping

PERRIS VALLEY: agricultural irrigation

POMONA: Paper manufacturing, dust control, and park, playground, school, cooling tower, golf course, strawberry, freeway, and landscape irrigation

RIVERSIDE: golf course, landscape and crop irrigation

ROWLAND WATER DISTRICT: LACSD Pomona WRP & San Jose Creek WRP

SAN BERNARDINO: steel plant cooling, golf course, agricultural and landscape

SAN CLEMENTE: golf course, landscape, and agricultural irrigation

SAN DIEGO: landscape, golf course, parks, school, median, and industrial irrigation, wildlife habitat, other mixed types

SAN ELIJO: landscape irrigation, other mixed types

SAN JACINTO: agricultural irrigation

SANTA MARIA: agricultural irrigation

TEMECULA: agricultural, landscape irrigation

TUSTIN: other mixed types

TWENTYNINE PALMS: golf course and landscape irrigation

UPLAND: golf course, landscape irrigation

UPPER SAN GABRIEL VALLEY MWD: LACSD San Jose Creek WRP, landscape irrigation & groundwater recharge

VENTURA: food crops, landscape irrigation, and golf course irrigation

VICTORVILLE: golf course

VICTOR VALLEY: industrial irrigation

WALNUT VALLEY WATER DISTRICT: LACSD Pomona WRP

WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA: seawater barrier program; West Basin MWD - Hyperion effluent treated for landscape, industrial uses, boiler feed water & seawater barrier

NORTH BAY WATER REUSE AUTHORITY
Sustainability Through Cooperative Water Recycling

500 Davidson Street, Novato, CA 94945 • 707-547-1923 • NBWRA.org • info@nbwra.org • NBWRA.org

WHAT YOU SHOULD KNOW ABOUT RECYCLED WATER

Recycled Water—Use on Landscapes, Schoolyards, Playgrounds, Parks, Golf Courses

MONITORING HEALTH AND SAFETY.

Scientific researchers continue their studies to assure the safety of recycled water for human and environmental uses. In over 70 years of recycled water use in California, there have been no documented instances of human harm from contact with recycled water. Recycled water is not used for drinking water in the North Bay Water Recycling Program.

SAFETY ON LANDSCAPES, PLAYGROUNDS, SCHOOLYARDS. Recycled water has been used for landscape irrigation for more than 70 years. Today, there are more than 1,600 individual park, playground and schoolyard sites being irrigated with recycled water in the United States. California and Florida each have almost 700 playground or schoolyard sites irrigated with recycled water.

NO KNOWN HEALTH RISKS. Landscape irrigation with recycled water is widespread in the U.S.; at the 1,600 park, playground and schoolyard sites mentioned above, for example, there have been no known incidences of illnesses or diseases from either microbial pathogens or chemical contamination resulting from the use of recycled water. Highly treated and disinfected recycled water can be considered safe for those uses, and does not present any known health risks to children or adults.

SAFEGUARDS IN PLACE. California enforces comprehensive rules to assure the safety of recycled water. The use is strictly controlled, including: prohibition of runoff of recycled water; setback distances from domestic water supply wells; restrictions on the time of irrigation; protection of water fountains from recycled water spray; color coding of all recycled water pipelines and valves; and signs noting that the water is not suitable for drinking.

These detailed safeguards are supported by requirements on the processing and handling of recycled water. Treatment plants must install alarms and similar controls. Workers require professional training and certification.

Napa Valley College Sports Fields Irrigated with Recycled Water

"Recycled water service in lieu of 16 million gallons of potable water each year has been well received by the campus community."

Dean TerAvest, Director of Campus Planning and Construction, Napa Valley College

WHAT YOU SHOULD KNOW ABOUT RECYCLED WATER

Recycled Water—Use on Landscapes, Schoolyards, Playgrounds, Parks, Golf Courses

BURBANK	City of Burbank WRP	1	Park & Playground	1	School Ground
EL DORADO	El Dorado Irrigation District	–	Parks & Playgrounds	3	School Grounds
FRESNO	Quail Lakes WWTP	–	Parks & Playgrounds	1	School Ground
MADERA	Golden Valley High School WWTP	–	Parks & Playgrounds	1	School Ground
MARIN	Las Gallinas Valley WRP – Marin MWD	12	Parks & Playgrounds	8	School Grounds
MONTEREY	Carmel TP – Carmel Area WWD	2	Parks & Playgrounds	1	School Ground
NAPA	City of Calistoga Dunaweal WTP	1	Park & Playground	1	School Ground
	Napa Sanitation District	4	Parks & Playgrounds	5	Athletic Fields
LOS ANGELES	County Sanitation Districts / LAC	94	Parks & Playgrounds	90	School Grounds
	Las Virgenes MWD – Tapia WRP	14	Parks & Playgrounds	11	School Grounds
	Los Angeles-Glendale WRP	1	Park & Playground	2	School Grounds
	West Basin MWD – West Basin WRP	42	Parks & Playgrounds	36	School Grounds
ORANGE	OCWD Green Acres TP	9	Parks & Playgrounds	3	School Grounds
	Moulton Niguel WD Joint Regional TP	22	Parks & Playgrounds	10	School Grounds
	Moulton Niguel WD PLA	8	Parks & Playgrounds	1	School Ground
	IRWD	75	Parks & Playgrounds	40	School Grounds
	South Coast WD	8	Parks & Playgrounds	1	School Grounds
	Santa Margarita WD	20	Parks & Playgrounds	10	School Grounds
PLACER COUNTY	Roseville Dry Creek WETP	2	Parks & Playgrounds	–	School Grounds
RIVERSIDE	Coachella Valley WD	–	Parks & Playgrounds	1	School Ground
	Desert Water Agency WRF	1	Park & Playground	1	School Ground
	Eastern MWD	–	Parks & Playgrounds	1	School Ground
	Rancho California WD	1	Park & Playground	3	School Grounds
SACRAMENTO	Sacramento Regional CSD	7	Parks & Playgrounds	3	School Grounds
SAN BERNARDINO	IEUA	3	Parks & Playgrounds	–	School Grounds
SAN DIEGO	Fallbrook PUD WTP #1	–	Parks & Playgrounds	1	School Ground
	Otay WD	2	Parks & Playgrounds	2	School Grounds
	Padre Dam MWD	6	Parks & Playgrounds	10	School Grounds
	San Diego North City WRP	6	Parks & Playgrounds	1	School Ground
	Vallecitos WD	2	Parks & Playgrounds	1	School Ground
SANTA BARBARA	Goleta SD	1	Park & Playground	3	School Grounds
	Santa Barbara El Estero WRF	16	Parks & Playgrounds	7	School Grounds
SANTA CLARA	Gilroy and Morgan Hill STP	1	Park & Playground	–	School Grounds
	Palo Alto Regional WRP	2	Parks & Playgrounds	–	School Grounds
	San Jose/Santa Clara WPCP	27	Parks & Playgrounds	20	School Grounds
	Sunnyvale WWTP	1	Park & Playground	–	School Grounds
SANTA CRUZ	Scotts Valley WD	–	Parks & Playgrounds	2	School Grounds
TOTALS:		391	PARKS & PLAYGROUNDS	281	SCHOOL GROUNDS

NORTH BAY WATER REUSE AUTHORITY
Sustainability Through Cooperative Water Recycling

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WHAT YOU SHOULD KNOW ABOUT RECYCLED WATER

Recycled Water—Microconstituents and Pharmaceuticals

Microconstituents are extremely small amounts of chemical compounds that occur in the environment, including in recycled water. Many of these substances are not new. They have probably been in the environment for many decades due to industrialization, but have been recently discovered due to advances in laboratory techniques that makes it possible to detect substances in the parts per billion or even per trillion range.

FOUND THROUGHOUT THE ENVIRONMENT. Microconstituents originate as a result of commercial, industrial and general public use of a variety of chemicals, such as medications, personal care products, hormones, steroids and pesticides. Scientists have discovered over 80,000 substances that occur at very low levels in the environment.

The presence of microconstituents in recycled water is low compared to some other common sources. For example, there is over a thousand times more estrogen in a glass of cow's milk than there is in recycled water. There are even more benzene and flame retardants in the air we breathe than in some bottled water. The wastewater treatment process that is the foundation of recycled water does not increase the amount of micro constituents in the environment.

One part per trillion is equivalent to 1 drop of water diluted into 20 two-meter-deep Olympic-size swimming pools, or one second of time in approximately 31,700 years.

PHARMACEUTICALS. There has been a great deal of interest recently regarding human health effects associated with pharmaceuticals, hormones and other organic wastewater contaminants. It should be emphasized that recycled water for irrigation is not used for drinking, virtually eliminating the likelihood of a health threat. A review of scientific information developed so far does not provide information on whether or not pharmaceuticals and chemicals in personal care products become concentrated in vegetation or soil through irrigation with recycled water. Drugs detected in the environment occur in very small amounts—in billionths or trillionths per each part of water. Many do not persist for long in the environment, and do not appear to pose an acute risk. Moreover, nearly all pharmaceuticals and personal care products are non-volatile, and do not escape from recycled water into the atmosphere.

EXTREMELY LOW TO UNASSIGNABLE RISK. Potential health effects for humans from exposure to microconstituents at concentrations detected in recycled water is not scientifically known but the risk is suspected to be extremely low to unassignable. In testimony to the U.S. Senate Subcommittee on Transportation, Safety, Infrastructure Security and Water Quality on April 15, 2008, Dr. Shane Snyder pointed out that the highest microconstituents detected in the U.S. drinking water to date was at a concentration approximately 5,000,000 times lower that the therapeutic dose. When applying the most conservative safety factors and the most susceptible population, the concentrations of microconstituents found in drinking water were several orders of magnitude lower than levels that might pose a public health hazard. The concentrations found would allow consumption of 50,000 eight-ounce glasses of water per day without any health effects. While concentrations found in recycled water might be higher for some microconstituents than those found in potable water, the same relative analogy holds.

WHAT YOU SHOULD KNOW ABOUT RECYCLED WATER

Recycled Water—Microconstituents and Pharmaceuticals

SUMMARY. No health issues have been reported from proper use of recycled water following decades of use throughout California and the United States. Recycled water is appropriate as a sustainable substitute for potable water that is currently used for urban and agricultural irrigation. Also, under the North Bay Water Recycling Program, recycled water would not be used for drinking. There is no evidence that recycled water is detrimental to humans or the environment when used for agricultural uses, parks, golf courses, pubic landscaping, wetlands habitat restoration and other environmental water needs. The state of current scientific opinion leans toward no known adverse human effects and possible effects to aquatic life with dozens of studies currently underway. We will continue to monitor them for new information as it becomes available. And, we will of course continue to follow all regulations for using recycled water.

No Drugs Down the Drain

HELP US KEEP MICROCONSTITUENTS OUT OF THE ENVIRONMENT

One of the best ways to limit the amount of microconstituents in the environment is to stop them from entering in the first place. The members of North Bay Water Reuse Authority help sponsor or promote programs for safe collection and disposal of pharmaceuticals and household hazardous waste. Contact your local agency for more information.

NORTH BAY WATER REUSE AUTHORITY
Sustainability Through Cooperative Water Recycling

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APPENDIX 3.4B

Potential Recycled Water Users in the Novato Area

The following customers would receive greater than 10 acre-feet per year (AFY) of recycled water for irrigation in the Novato area:

U.S. Coast Guard at Hamilton Air Force Base – 1 at 105 AFY in the South service zone represents 11.5% of the anchor users.

Caltrans Highway Irrigation – 2 at 97 AFY future usage in the Central service zone represents 10.6% of the anchor users.

County of Marin – 1 at 53 AFY is used by the Stafford Lake County Park in the West service zone and represents 5.8% of the anchor users. This park is not appropriate for recycled water use since it is tributary to Stafford Lake which is used in NMWD's potable water supply.

City of Novato – 4 at 73 AFY in the Central and South service zones represents 8% of the anchor users.

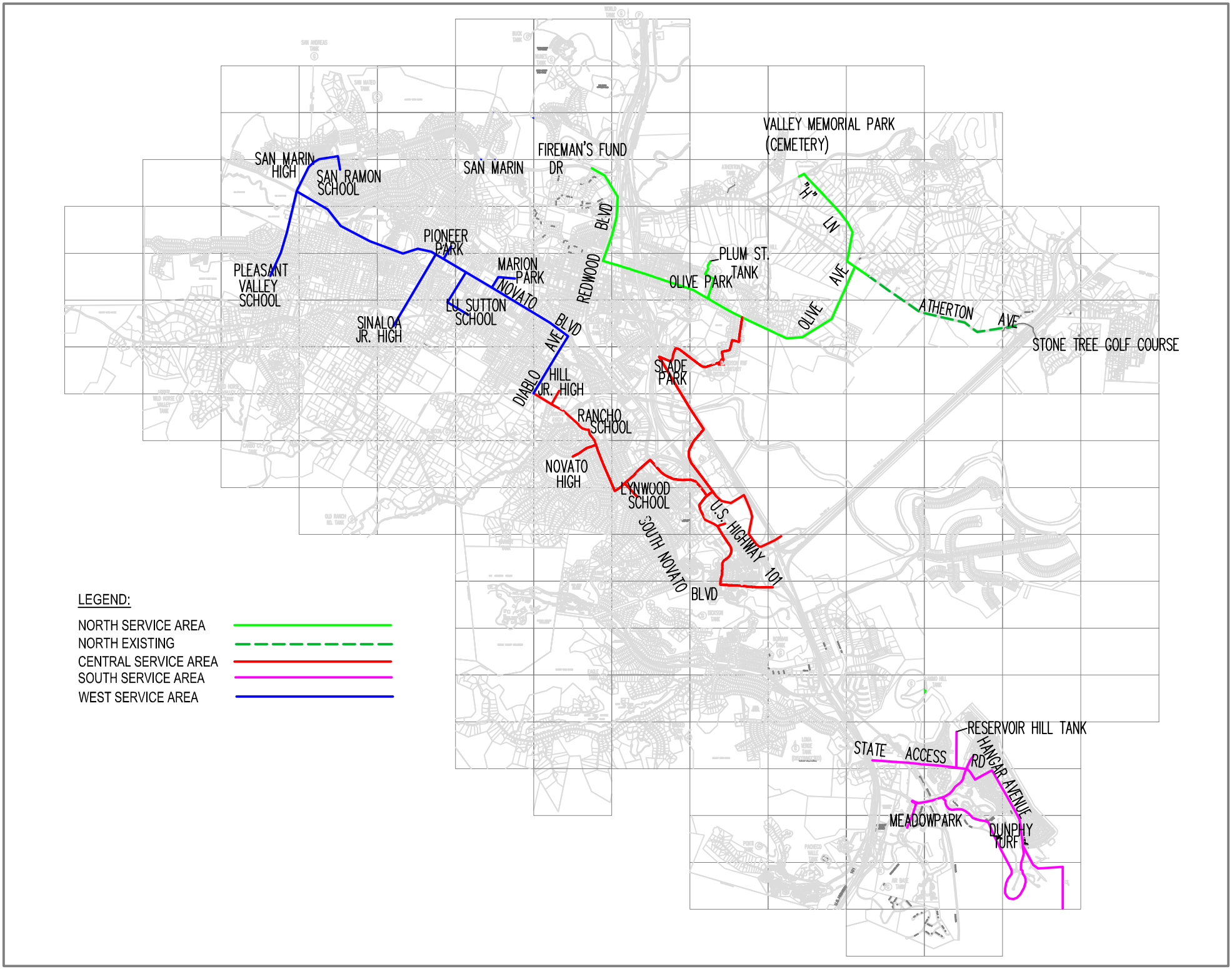
Novato Unified School District – 10 at 180 AFY in the Central, South and West service zones represents 20% of the anchor users. The Novato High School and San Marin High School will have water use reductions due to artificial turf installation. The estimated water use reduction based on a smaller irrigation area is approximately 15%.

Commercial Users – 4 at 188 AFY in the North, Central and South service zones represents 20% of the anchor users.

Homeowners Associations – 10 at 210 AFY in the Central, South and West service zones represents 23% of the anchor users.

The two largest irrigation water customers in the District are the US Coast Guard at HAFB in the South service area and Fireman's Fund in the North service area.

The locations of potential users that would receive greater than 10 AFY of recycled water is shown in attached figure.


SAN MARIN HIGH
SAN RAMON SCHOOL
SAN MARIN
FIREMAN'S FUND DR
VALLEY MEMORIAL PARK (CEMETERY)
"H" LN
PIONEER PARK
MARION PARK
NOVATO BLVD
REDWOOD BLVD
PLUM ST. TANK
OLIVE PARK
OLIVE AVE
ATHERTON AVE
STONE TREE GOLF COURSE
PLEASANT VALLEY SCHOOL
LU SUTTON SCHOOL
SINALOA JR. HIGH
DIABLO AVE
HILL JR. HIGH
SLADE PARK
RANCHO SCHOOL
NOVATO HIGH
LYNWOOD SCHOOL
SOUTH NOVATO BLVD
U.S. HIGHWAY 101
RESERVOIR HILL TANK
STATE ACCESS RD
HANGAR AVENUE
MEADOWPARK
DUNPHY TURF
LEGEND:
NORTH SERVICE AREA
NORTH EXISTING
CENTRAL SERVICE AREA
SOUTH SERVICE AREA
WEST SERVICE AREA

APPENDIX 3.5
Biological Resources

Local

The regulatory mechanisms for regional oversight of natural resources in the LGVSD area stem from policies contained in the Marin Countywide Plan (Marin County, 2007). Relevant goals, objectives and policies from the General Plan pertinent to wetlands and biological resource conservation issues in the project area are presented below.

City of San Rafael General Plan

The regulatory mechanisms for regional oversight of natural resources in the Peacock Gap area stem from policies contained in the City of San Rafael General Plan (Marin County, 2007). General Plan goals include protecting habitat (Goal 31) via policies such as preserving wetlands; restoring tidal influences; restricting riparian access; retaining trees and riparian corridors; protecting sensitive habitats and enhancing steelhead habitat; preserving oak woodland; preserving wildlife movement corridors; and landscaping with native plants.

City of San Rafael Municipal Code – Tree Ordinance

The City of San Rafael protects trees through measures outlined in Municipal Code Chapter 11.12, which requires a permit for alteration and removal of trees upon or along any public street, sidewalk or walkway in the city. During the erection or repair of any building or structure, the code calls for protective guards to be placed around all nearby trees to prevent injury.

City of San Rafael General Plan

GOAL 31: Protected Habitat. It is the goal of San Rafael to have enhanced habitat for native plants and animals, and special protection for species that are listed as threatened or endangered. San Rafael is rich in wildlife and native plant habitats, such as wetlands, creeks, shorelines, oak woodlands and riparian areas, as well as wildlife corridors between them, and these habitats are being protected or restored as necessary.

Policy CON-1. Protection of Environmental Resources.

- Protect or enhance environmental resources, such as ridgelines, wetlands, diked baylands, creeks and drainageways, shorelines and habitat for threatened and endangered species.

Program CON-1a. Plans for Environmental Protection.

- Complete the implementation of Mahon Creek Final.
- Conceptual Plan and the Shoreline Park Master Plan.

Policy CON-2. Wetlands Preservation.

- Require appropriate public and private wetlands preservation, restoration and/or rehabilitation through compensatory mitigation in the development process for unavoidable impacts. Support and promote acquisition of fee title and/or easements from willing property owners.

Program CON-2a. Wetlands Overlay District.

- Continue to implement wetlands policy through the Wetlands Overlay zoning district and development review.

Policy CON-3. Unavoidable Filling of Wetlands.

- Loss of wetlands due to filling should be avoided. Any request for fill must demonstrate that the proposed fill cannot be avoided. If fill is unavoidable, there shall be a compensatory minimum of 2:1 ratio of wetlands created or restored, onsite or off-site. The City may waive this policy for fill of a small (0.1 acre or less), hydrologically isolated wetland (surface water) or drainageway provided that the wetland or drainageway is not within or connected to historic drainages and provided that the applicant is in compliance with requirements of other agencies that regulate wetlands.

Program CON-3a. Project Mitigation.

- Continue the City's practice of requiring mitigation for projects that would affect wetlands, in conjunction with recommendations of State and Federal agencies.

Policy CON-4. Wetland Setbacks.

- Maintain a minimum 50-foot development-free setback from wetlands, including, but not limited to, paving or structures. Setbacks of greater than 50 feet may be required on lots of two or more acres as determined through development review. The City may waive this requirement for minor encroachments if it can be demonstrated that the proposed setback adequately protects the functions of the wetland to the maximum extent feasible and resulting values to the satisfaction of the City after review by the appropriate regulatory agencies.

Policy CON-5. Diked Baylands.

- Protect seasonal wetlands and associated upland habitat contained within undeveloped diked baylands, or restore to tidal action. Support and promote acquisition from willing property owners.

Policy CON-6. Creek and Drainageway Setbacks.

- Require development-free setbacks, except for specific access points as approved per policy

Policy CON-7 (Public Access to Creeks), from existing creeks and drainageways that will maintain the functions and resulting values of these habitats.

- Appropriate erosion control and roadway crossings may encroach into the development setback. In the absence of vegetation promote new growth of natural habitat.

The City may waive this requirement for minor encroachments if it can be demonstrated that the proposed setback adequately protects the functions of the creek to the maximum extent feasible and resulting values to the satisfaction of the City after review by the appropriate regulatory agencies.

Program CON-6a. Municipal Code Compliance.

- Ensure that the San Rafael Municipal Code complies with local, state, and federal regulatory agencies requirements for erosion control.

Policy CON-7. Public Access to Creeks.

- Provide pedestrian access to points along creeks throughout the City where such access will not adversely affect habitat values.

Program CON-7a. Creek Access Points.

- Proactively identify and create desirable access points to creeks on public lands.

Program CON-7b. Public Access.

- Through the development review process, identify and secure areas appropriate for access points to creeks.

Program CON-7c. Website Publicity.

- Use the City's website to publicize information about protecting and accessing San Rafael's creeks and waterways.

Program CON-7d. Creek Signage.

- Develop a program to provide attractive signage identifying creeks.

Policy CON-8. Enhancement of Creeks and Drainageways.

- Explore enhancement of, and support continuous upgrades to, drainageways to serve as wildlife habitat corridors for wildlife movement and to serve as flood control facilities to accommodate storm drainage. Require creek enhancement and associated riparian habitat restoration/creation for projects adjacent to creeks to maintain storm flows, reduce erosion and maintenance and improve habitat values, where feasible.

Program CON-8a. Creek Restoration.

- Encourage and support efforts by neighborhood associations, environmental organizations and other interested groups to fund creek enhancement, restoration and maintenance programs.

Program CON-8b. Tree Retention.

- Retain trees along creeks, where possible, for preservation of riparian habitat and to inhibit growth of algae.

Policy CON-9. Native and/or Sensitive Habitats.

- Protect habitats that are sensitive, rare, declining, unique or represent a valuable biological resource.

Program CON-9a. Steelhead Habitat.

- Support efforts to restore, preserve or enhance Central California Coast Steelhead habitat in Miller Creek and other creeks.

Program CON-9b. Feral Cats.

- To protect habitats, especially for birds and small animals, continue to fund programs of the Marin Humane Society including those to reduce the population of feral cats.

Policy CON-10. Impacts to Sensitive Habitats.

- Minimize impacts to sensitive natural habitats through careful planning. Require compliance with applicable laws and regulations.

Program CON-10a. Oak Savanna/Woodland Habitat Protection.

- Require that proposed developments with potential impacts to oak savanna/woodland habitat to either avoid, minimize, or compensate for the loss of oak savanna/woodland habitat. Avoidance would be the preferred measure where feasible. If it is deemed that an impact is unavoidable, minimization of direct and indirect impacts or compensation through habitat restoration, creation, or enhancement would be required.

Policy CON-11. Wildlife Corridors.

- Preserve and protect areas that function as wildlife corridors, particularly those areas that provide natural connections permitting wildlife movement between designated sensitive habitats.

Policy CON-13. Threatened and Endangered Species.

- Preserve and protect threatened and endangered species of plants and animals formally listed consistent with the state and federal endangered species acts including protection of their habitat.

Program CON-13a. List of Species.

- Maintain a current list of threatened and endangered and special status species.

Policy CON-14. Special Status Species.

- Preserve and protect special status plants and animals, including candidate species for listing under the state and federal endangered species acts, California species of special concern, California Native Plant Society List 1B plants, and other species protected under provisions of California Fish and Game Code.

Program CON-14a. Surveys.

- Require that vacant sites be surveyed for the presence or absence of relevant special status species prior to development approval.

Program CON-14b. Minimization.

- Require that where impacts to special status species are deemed unavoidable, potential impacts to the identified species are minimized through design, construction, and operation of the project. Compensation measures could include on-site set asides or off-site acquisitions (e.g. conservation easements, deed restrictions, etc.) that would be required if project impacts result in direct loss or indirect impacts that cannot be mitigated in other ways. This might also involve species-specific enhancement restoration efforts for the mitigation lands.

Policy CON-15. Invasive Non-Native Plant Species.

- Remove and control selected undesirable invasive non-native plant species from Cityowned open space and road right of ways, and encourage the removal and control of these invasive plant species from non-City owned ecologically-sensitive areas.

Program CON-15a. Invasive Plant Ordinance.

- Consider the legality, feasibility and enforceability of an Invasive Plant Ordinance addressing the removal of invasive species on private and public properties. As part of the ordinance, evaluate the benefits and impacts of using herbicide on invasive species where there are no other feasible controls.

Program CON-15b. Removal of Invasive Species on Public Property.

- Institute a program to remove invasive plant species on public properties. Consider the use of volunteers and private organizations to assist in this effort.

Policy CON-16. Landscape with Native Plant Species.

- Encourage landscaping with native and compatible non-native plant species, especially drought-resistant species.

Program CON-16a. Distribution of Information.

- Distribute Marin Municipal Water District and other organizations' educational materials about native plant landscaping.

Marin Countywide Plan

The regulatory mechanisms for regional oversight of natural resources in the LGVSD area stem from policies contained in the Marin Countywide Plan (Marin County, 2007). General Plan goals include enhancing native habitat and biodiversity (Goal BIO-1); protecting sensitive biological resources (Goal BIO-2); conserving wetlands (Goal BIO-3); Conserving riparian corridors (Goal BIO-4); and conserving baylands (Goal BIO-5). Policies established under these goals include protecting habitat for special-status species and sensitive natural communities; preserving wildlife movement corridors; protecting woodlands and trees; landscaping with native plants; developing habitat monitoring programs and maintaining a natural resources information program; preparing a county stream map; and protecting wildlife nursery areas and sensitive coastal habitat.

Marin County Code Chapter 22.27 protects and preserves native trees in the non-agricultural unincorporated areas of Marin County through permit requirements and limited tree removal. A

long list of protected trees appears in the Native Tree Preservation and Protection Ordinance, included in Appendix 3.5. Mitigation may include: establishment and maintenance of replacement trees onsite; for large properties, a management plan which designates areas of the property for preservation; removal of invasive exotic species; the posting of a bond to cover inspection costs associated with the described measures; and/or a payment of $100 per tree to be deposited into the Tree Replacement Fund managed by the Marin County Open Space District for planting and maintenance of trees and other vegetation.

Marin County General Plan

GOAL BIO-1: Enhanced Native Habitat and Biodiversity. Effectively manage and enhance native habitat, maintain viable native plant and animal populations, and provide for improved biodiversity throughout the County.

Policy BIO-1.1 Protect Wetlands, Habitat for Special-Status Species, Sensitive Natural Communities, and Important Wildlife Nursery Areas and Movement Corridors.

- Protect sensitive biological resources, wetlands, migratory species of the Pacific flyway, and wildlife movement corridors through careful environmental review of proposed development applications, including consideration of cumulative impacts, participation in comprehensive habitat management programs with other local and resource agencies, and continued acquisition and management of open space lands that provide for permanent protection of important natural habitats.

Policy BIO-1.2 Acquire Habitat.

- Continue to acquire areas containing sensitive resources for use as permanent open space, and encourage and support public and private partnerships formed to acquire and manage important natural habitat areas, such as baylands, wetlands, coastal shorelines, wildlife corridors, and other lands linking permanently protected open space lands.

Policy BIO-1.3 Protect Woodlands, Forests, and Tree Resources.

- Protect large native trees, trees with historical importance; oak woodlands; healthy and safe eucalyptus groves that support colonies of monarch butterflies, colonial nesting birds, or known raptor sites; and forest habitats. Prevent the untimely removal of trees through implementation of standards in the Development Code and the Native Tree Preservation and Protection Ordinance. Encourage other local agencies to adopt tree preservation ordinances to protect native trees and woodlands, regardless of whether they are located in urban or undeveloped areas.

Policy BIO-1.4 Support Vegetation and Wildlife Disease Management Programs.

- Support agency programs and proven methods to limit the impacts of Sudden Oak Death syndrome and any other diseases harmful to native vegetation and wildlife in Marin County, while addressing any potential adverse effects on sensitive resources.

Policy BIO-1.5 Promote Use of Native Plant Species.

- Encourage use of a variety of native or compatible nonnative, non-invasive plant species indigenous to the site vicinity as part of project landscaping to improve wildlife habitat values.

Policy BIO-1.6 Control Spread of Invasive Exotic Plants.

- Prohibit use of invasive species in required landscaping as part of the discretionary review of proposed development. Work with landowners, landscapers, the Marin County Open Space District, nurseries, and the multi-agency Weed Management Area to remove and prevent the spread of highly invasive and noxious weeds. Invasive plants are those plants listed in the State's Noxious Weed List, the California Invasive Plant Council's list of "Exotic Pest Plants of Greatest Ecological Concern in California," and other priority species identified by the agricultural commissioner and California Department of Agriculture. Species of particular concern include the following: barbed goatgrass (Aegilops triuncialis), giant reed (Arundo donax), Italian thistle (Carduus pycnocephalus), distaff thistle (Carthamus lanatus), purple starthistle (Centaurea calcitrapa), yellow starthistle (Centaurea solstitialis), pampas grass (Cortaderia selloana), Scotch broom (Cytisus scoparius), Cape ivy (Delairea odorata), oblong spurge (Euphorbia oblongata), fennel (Foeniculum vulgare), French broom (Genista monspessulana), salt-water cord grass (Spartina alternifolia), Spanish broom (Spartium junceum), medusahead (Taeniatherum caput-medusae), gorse (Ulex europaeus), and periwinkle (Vinca major), among others.

Policy BIO-1.7 Remove Invasive Exotic Plants.

- Require the removal of invasive exotic species, to the extent feasible, when considering applicable measures in discretionary permit approvals for development projects unrelated to agriculture, and include monitoring to prevent re-establishment in managed areas.

Policy BIO-1.8 Restrict Use of Herbicides, Insecticides, and Similar Materials.

- Encourage the use of integrated pest management and organic practices to manage pests with the least possible hazard to the environment. Restrict the use of insecticides, herbicides, or any toxic chemical substance in sensitive habitats, except when an emergency has been declared; the habitat itself is threatened; a substantial risk to public health and safety exists, including maintenance for flood control; or such use is authorized pursuant to a permit issued by the agricultural commissioner. Encourage nontoxic strategies for pest control, such as habitat management using physical and biological controls, as an alternative to chemical treatment, and allow use of toxic chemical substances only after other approaches have been tried and determined unsuccessful. Continue to implement the Integrated Pest Management ordinance for county-related operations.

Policy BIO-1.9 Control Spread of Non-Native Invasive Animal Species.

- Work with landowners, the Marin County Open Space District, the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the National Invasive Species Council, Point Reyes National Seashore, and other agencies and organizations to control and prevent the spread of non-native, invasive animal species. Species of particular concern include: introduced red fox (Vulpes vulpes), Chinese mitten crab (Eriocheir sinensis), bullfrog (Rana catesbeiana), and wild boar (Sus scrofa), among others. Wild turkey (Meleagris gallopavo) is also a non-native species of increasing abundance and concern in the county, and it requires careful management to prevent adverse impacts on native habitat.

Program BIO-1.a Map Natural Communities.

- Work with other agencies to complete GIS mapping of vegetation, wetlands, and streams in the county according to the National Vegetation Classification system, consistent with methodology used to map vegetation in the Golden Gate National Recreation Area and Point Reyes National Seashore.

Program BIO-1.b Develop Habitat Monitoring Programs.

- Using countywide GIS mapping of natural communities and other information sources, work with other agencies to develop a program to monitor trends in habitat loss, protection, and restoration. Establish cumulative thresholds for habitat loss for particularly vulnerable natural communities and use as a basis for modifying standards for mitigation.

Program BIO-1.c Maintain a Natural Resource Information Program.

- Provide interested public, the cities/towns in the county, and landowners with up-to-date information on sensitive ecological resources and regulations enacted to protect these resources, to accurately assess the potential impacts of proposed development on species and habitat diversity, determine when additional detailed site environmental assessment is necessary, provide information on invasive exotic species control, and monitor development trends and habitat management activities. The Natural Resource Program should contain the following:

  - Up-to-date information on verified sightings of special-status species and sensitive natural communities compiled by the California Natural Diversity Data Base, California Department of Fish and Game, Non-Game Heritage Division.
  - Reports and agency recovery programs for special-status species and sensitive natural communities, and related information summarizing regulations.
  - Up-to-date information from the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration Fisheries, and California Department of Fish and Game, including lists of special-status species and their current status and lists of terrestrial natural communities and sensitive natural communities.
  - Available recovery plans for listed special-status species, mapping of critical habitat areas, and sightings and inventories of migratory species; reports, sightings, and recovery programs from credible, local sources such as the PRBO Conservation Science, California Native Plant Society, and Marin Audubon Society.
  - Biological reports completed as part of environmental review of proposed development projects and other studies, including information shared with cities and towns and districts within Marin County.
  - Lists of appropriate and inappropriate plant species for use in developing landscape plans to ensure that invasive exotic plants, plants with high water requirements, and, in fire hazard areas, species that are highly flammable, are excluded.
  - Summarized information for use by landowners addressing habitat protection and management of sensitive resources. This may include a list of references to existing and ongoing information sources pertaining to natural resource

management, and production of brochures summarizing setback standards, appropriate and inappropriate lands use practices, and desired management programs.

Program BIO-1.d Reevaluate County Native Tree Preservation and Protection Ordinance #3291.

- Consider expanding existing provisions along with establishing a complementary education and outreach program to ensure woodland conservation and management, not simply protection of individual trees. Factors to address in the reevaluation include preserving stands or groups of trees, identifying and promoting representative species and a diversity of age classes, minimizing fragmentation and providing linkages and corridors, protecting and enhancing other components of forest and woodlands such as understory species and associated wildlife, and providing for sustainable regeneration through natural processes.

Program BIO-1.f Prepare Appropriate Landscape Lists.

- Prepare lists of appropriate native and nonnative landscape species that are not invasive plants, have habitat value, have low-water requirements, and, for high hazard areas of the county, have low flammability. Prepare a second set of lists of plant species to avoid that are highly flammable, inappropriate water-thirsty plants, or undesirable invasive exotic species for property owner use in developing new or enhancing existing landscaping. Require applicants for discretionary approval with parcels that share all or part of a boundary with publicly owned open space to develop landscape plans that fully conform to the lists of appropriate plants. Prepare lists with input from the California Department of Fish and Game, agricultural commissioner, University of California Cooperative Extension, California Native Plant Society, Marin Municipal Water District, National Park Service, and other appropriate sources to verify suitability.

Program BIO-1.g Expand Education, Outreach, and Regulatory Programs Regarding Control of Invasive Exotic Species.

- Continue to work with the Marin/Sonoma Weed Management Area to promote the control and management of invasive exotic plant species. As part of the Natural Resource Information Program, provide interested public and landowners with information on invasive exotic species control and management, including up-to-date lists of invasive exotic plant and animal species of concern in Marin County, and links to other agencies and organizations involved in monitoring their status, such as the California Department of Fish and Game, U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration Fisheries, the National Invasive Species Council, and the California Invasive Plant Council. Explore the feasibility of creating an ordinance that prohibits the sale of selected invasive exotic plant species of particular threat to natural habitat in Marin County, such as Scotch broom and French broom.

GOAL BIO-2: Protection of Sensitive Biological Resources. Require identification of sensitive biological resources and commitment to adequate protection and mitigation, and monitor development trends and resource preservation efforts.

Policy BIO-2.1 Include Resource Preservation in Environmental Review.

- Require environmental review pursuant to CEQA of development applications to assess the impact of proposed development on native species and habitat diversity, particularly special-status species, sensitive natural communities, wetlands, and important wildlife nursery areas and require adequate mitigation measures for ensuring the protection of any sensitive resources and achieving "no net loss" of sensitive habitat acreage, values, and function.

Policy BIO-2.2 Limit Development Impacts.

- Restrict or modify proposed development in areas that contain essential habitat for special-status species, sensitive natural communities, wetlands, baylands and coastal habitat, and riparian habitats, as necessary to ensure the continued health and survival of these species and sensitive areas. Development projects should preferably be modified to avoid impacts on sensitive resources, or to adequately mitigate impacts by providing on-site or (as a lowest priority) off-site replacement at a higher ratio.

Policy BIO-2.3: Preserve Ecotones.

- Condition or modify development permits to ensure that ecotones, or natural transitions between habitat types, are preserved and enhanced because of their importance to wildlife. Ecotones of particular concern include those along the margins of riparian corridors, baylands and marshlands, vernal pools, and woodlands and forests where they transition to grasslands and other habitat types.

Policy BIO-2.4 Protect Wildlife Nursery Areas and Movement Corridors.

- Ensure that important corridors for wildlife movement and dispersal are protected as a condition of discretionary permits, including consideration of cumulative impacts. Features of particular importance to wildlife for movement may include riparian corridors, shorelines of the coast and bay, and ridgelines. Linkages and corridors shall be provided that connect sensitive habitat areas such as woodlands, forests, wetlands, and essential habitat for special-status species, including an assessment of cumulative impacts.

Policy BIO-2.5 Restrict Disturbance in Sensitive Habitat During Nesting Season.

- Limit construction and other sources of potential disturbance in sensitive riparian corridors, wetlands, and baylands to protect bird nesting activities. Disturbance should generally be set back from sensitive habitat during the nesting season from March 1 through August 1 to protect bird nesting, rearing, and fledging activities. Preconstruction surveys should be conducted by a qualified professional where development is proposed in sensitive habitat areas during the nesting season, and appropriate restrictions should be defined to protect nests in active use and ensure that any young have fledged before construction proceeds.

Policy BIO-2.6 Identify Opportunities for Safe Wildlife Movement.

- Ensure that existing stream channels and riparian corridors continue to provide for wildlife movement at roadway crossings, preferably through the use of bridges, or through over-sized culverts, while maintaining or restoring a natural channel bottom. Consider the need for wildlife movement in designing and expanding major roadways and other barriers in the county. Of particular concern is the possible widening of Highway 101 north of Novato to the county line, where maintenance of

movement opportunities for terrestrial wildlife between the undeveloped habitat on Mount Burdell and the marshlands along the Petaluma River is critical.

Policy BIO-2.7 Protect Sensitive Coastal Habitat.

- Protect coastal dunes, streams, and wetlands, and sensitive wildlife habitat from development in accordance with coastal resource management standards in the development code.

Policy BIO-2.8 Coordinate with Trustee Agencies.

- Consult with trustee agencies (the California Department of Fish and Game, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration Fisheries, U.S. Army Corps of Engineers, Environmental Protection Agency, Regional Water Quality Control Board, and Bay Conservation and Development Commission) during environmental review when special-status species, sensitive natural communities, or wetlands may be adversely affected.

Policy BIO-2.9 Promote Early Consultation with Other Agencies.

- Require applicants to consult with all agencies with review authority for projects in areas supporting wetlands and specialstatus species at the outset of project planning.

Program BIO-2.a Require Site Assessments.

- Require site assessment by a qualified professional for development applications that may adversely affect sensitive biological or wetland resources, including jurisdictional wetlands, occurrences of special-status species, occurrences of sensitive natural communities, and important wildlife nursery areas and movement corridors. The assessment should determine the presence or absence of any sensitive resources that could be affected by development, evaluate the potential impacts, and identify measures for protecting the resource and surrounding habitat. Require the assessment to be conducted by a qualified professional paid for by the applicant. Unless waived, the qualified professional should be hired directly by Marin County.

Program BIO-2.b Conduct Habitat Connectivity Assessment.

- Conduct a comprehensive assessment of habitat fragmentation and connectivity loss in coordination with resource agencies, landowners, and interested public. Develop recommendations for policies to protect essential habitat corridors and linkages, and to restore and improve opportunities for native plant and animal dispersal. Protection could include acquisition as open space in fee title, permanent preservation and management under a conservation easement, or other suitable methods. Important factors that should be considered as part of the assessment include the following: locations of sensitive resources such as special-status species and wetlands; methods to eliminate obstructions along streams that currently limit the functions and values of riparian corridors; effects of intensive development, major roadways, and fencing on plant and animal dispersal; and the need to protect and enhance linkages between baylands and undeveloped uplands through the eastern part of the county.

Program BIO-2.c Facilitate Agency Review.

- Coordinate County review with that of agencies with jurisdiction over proposed activities and areas, and require evidence of compliance with any necessary permits from federal and State agencies prior to issuance of County grading or building permits.

Program BIO-2.d Promote Early Agency Consultation.

- Inform applicants upon initial contact with the County about other agencies that may have jurisdiction, and the policies and standards of those agencies that may regulate proposed development activities.

Program BIO-2.e Participate in FishNet4C Program.

- Continue to actively participate in the FishNet4C program and work cooperatively with participating agencies to implement recommendations to improve and restore aquatic habitat for listed anadromous fish species and other fishery resources.

GOAL BIO-3: Wetland Conservation. Require all feasible measures to avoid and minimize potential adverse impacts on existing wetlands and to encourage programs for restoration and enhancement of degraded wetlands.

Policy BIO-3.1 Protect Wetlands.

- Require development to avoid wetland areas so that the existing wetlands and upland buffers are preserved and opportunities for enhancement are retained (areas within setbacks may contain significant resource values similar to those within wetlands and also provide a transitional protection zone). Establish a Wetland Conservation Area (WCA) for jurisdictional wetlands to be retained, which includes the protected wetland and associated buffer area. Development shall be set back a minimum distance to protect the wetland and provide an upland buffer. Larger setback standards may apply to wetlands supporting special status species or associated with riparian systems and baylands under tidal influence, given the importance of protecting the larger ecosystems for these habitat types as called for under Stream Conservation and Baylands Conservation policies defined in Policy BIO-4.1 and BIO-5.1, respectively. Regardless of parcel size, a site assessment is required either where incursion into a WCA is proposed or where full compliance with all WCA criteria would not be met. Employ the following criteria when evaluating development projects that may impact wetland areas (see Figure 2-1):

  City-Centered Corridor:

  - For parcels more than 2 acres in size, a minimum 100-foot development setback from wetlands is required.
  - For parcels between 2 and 0.5 acres in size, a minimum 50-foot development setback from wetlands is required.
  - For parcels less than 0.5 acres in size, a minimum 20-foot development setback from wetlands is required. The developed portion(s) of parcels (less than 0.5 acres in size) located behind an existing authorized flood control levee or dike are not subject to a development setback.
  - Regardless of parcel size, an additional buffer may be required based on the results of a site assessment, if such an assessment is determined to be necessary. Site assessments will be required and conducted pursuant to Program BIO-3.c, *Require Site Assessment.*

  Coastal, Inland Rural, and Baylands Corridors:

  - For all parcels, provide a minimum 100-foot development setback from wetlands (areas within setbacks may contain significant resource values similar

to those within wetlands and also provide a transitional protection zone). An additional buffer may be required, based on the results of a site assessment, if such an assessment is determined to be necessary. Site assessments will be required and conducted pursuant to Program BIO-3.c, Require Site Assessment.

Exceptions to full compliance with the WCA setback standards may apply only in the following cases:

- Parcel is already developed with an existing use, provided no unauthorized fill or other modifications to wetlands have occurred as part of ongoing use of the property.
- Parcel is undeveloped and falls entirely within the WCA.
- Parcel is undeveloped and potential impacts on water quality, wildlife habitat, or other sensitive resources would be greater as a result of development outside the WCA than development within the WCA, as determined by a site assessment.
- Wetlands are avoided and a site assessment demonstrates that minimal incursion within the minimum WCA setback distance would not result in any significant adverse direct or indirect impacts on wetlands.

GOAL BIO-3.2 Require Thorough Mitigation. Where avoidance of wetlands is not possible, require provision of replacement habitat on-site through restoration and/or habitat creation at a minimum ratio of 2 acres for each acre lost (2:1 replacement ratio) for on-site mitigation and a minimum 3:1 replacement ratio for off-site mitigation. Mitigation wetlands should be of the same type as those lost and provide habitat for the species that use the existing wetland. Mitigation should also be required for incursion within the minimum WCA setback/transition zone.

Policy BIO-3.a Adopt Wetland Conservation Area Ordinance.

- Prepare and adopt an ordinance to refine wetland standards pursuant to WCA polices. Setback distances and buffer criteria for smaller developed parcels within the City-Centered Corridor should allow flexibility based on site constraints, opportunities for avoidance, presence of sensitive biological resources, and options for alternative mitigation. As part of the new ordinance, consider including incentives to reduce the extent of existing development within a WCA, or improve conditions that may be impacting sensitive resources if the parcel is proposed for redevelopment.

Policy BIO-3.b Comply with Regulations to Protect Wetlands.

- Continue to require development applications to include the submittal of a wetland delineation for sites with jurisdictional wetlands and to demonstrate compliance with these wetlands policies, standards, and criteria, and with State and federal regulations.

Policy BIO-3.c Require Site Assessment.

- Require development applications to include the submittal of a site assessment prepared by a qualified professional where incursions into the WCA are proposed, or adverse impacts to wetlands resources may otherwise occur. The assessment should be considered in determining whether any adverse direct or indirect 0impacts on wetlands would occur as a result of the proposed development, whether wetlands

criteria and standards are being met, and to identify measures necessary to mitigate any significant impacts. The site assessment may also serve as a basis for the County to apply restrictions in addition to those required by State and federal regulations. The site assessment shall be paid for by the applicant. Unless waived, the qualified professional shall be hired directly by Marin County.

Policy BIO-3.d Prioritize Wetland Avoidance.

- Amend the Development Code to require development to avoid wetlands and transition zones. Where avoidance of wetlands is not possible, require the provision of replacement habitat on-site through restoration and/or habitat creation, provided that no net loss of wetland area, wetland function, and habitat values occurs. On-site wetlands mitigation shall be provided at a minimum ratio of 2 acres for each acre lost (2:1 replacement ratio). Allow off-site wetland mitigation only when an applicant has demonstrated that no net loss of wetland area, wetland functions, and wetland values would occur, and that on-site mitigation is not possible. In those rare instances when on-site wetlands loss is unavoidable and on-site replacement is infeasible, require that a minimum of 3 acres be provided through mitigation for each acre lost (3:1 replacement ratio), preferably of the same habitat type as the wetland area that would be lost. The mitigation site should be close to the site of loss so that the mitigation wetland would provide habitat for the species that use the existing wetlands.

Policy BIO-3.e Establish Clear Mitigation Criteria.

- Amend the Development Code to incorporate wetland impact mitigations measures that accomplish the following objectives:

  a. No net losses shall occur in wetland acreage, functions, or values. This should include both direct impacts on wetlands and essential buffers, and consideration of potential indirect effects of development due to changes in available surface water and nonpoint water quality degradation. Detailed review of the adequacy of a proposed mitigation plan shall be performed as part of environmental review of the proposed development project to allow for a thorough evaluation of the anticipated loss, as well as the replacement acreage, functions, and values.

  b. Mitigation shall be implemented prior to and/or concurrently with the project activity causing the potential adverse impact to minimize any short-term loss and modification to wetlands.

  c. An area of adjacent upland habitat shall be protected to provide an adequate buffer for wetland functions and values. Development shall be set back the minimum distance specified in Policy BIO-3.1 to create this buffer, unless an exception is allowed and appropriate mitigation is provided where necessary, pursuant to Policy BIO-3.2.

  d. Mitigation sites shall be permanently protected and managed for open space and wildlife habitat purposes.

  e. Restoration of wetlands is preferred to creation of new replacement wetlands, due to the greater likelihood of success.

  f. Mitigation projects must to the extent feasible minimize the need for ongoing maintenance and operational manipulation (dredging, artificial water-level

controls, etc.) to ensure long-term success. Self-sustaining projects with minimal maintenance requirements are encouraged.

g. All plans to mitigate or minimize adverse impacts to wetland environments shall include provisions to monitor the success of the restoration project. The measures taken to avoid adverse impacts may be modified if the original plans prove unsuccessful. Performance bonds shall be required for all mitigation plans involving habitat creation or enhancement, including the cost of five years of post completion monitoring.

h. Mitigation must be commensurate with adverse impacts of the wetland alteration and consist of providing similar values and greater wetland acreage than those of the wetland area adversely affected. All restored or created wetlands shall be provided at the minimum replacement ratio specified in Program BIO-3.d and shall have the same or increased habitat values as the wetland proposed to be destroyed.

Policy BIO-3.f Establish Criteria for Setbacks.

- Establish criteria to be used in the review of individual development applications for determining an adequate setback distance in upland habitat to protect resource values in the setback area and to serve as a buffer zone between development and wetland areas. Setbacks may contain significant resource values similar to those within wetlands. Setbacks should provide for minimum filtration functions to intercept sediments and prevent degradation of adjacent wetlands to be protected. The setbacks shall conform with distances specified in Policy BIO-3.1, with varied minimum setbacks in the City-Centered Corridor, and minimum 100-foot setback distances in the Coastal, Inland Rural, and Baylands corridors. Within the City-Centered Corridor, flexibility should be included in the criteria based on site constraints, opportunities to ensure the avoidance of sensitive wetlands and associated resources such as special-status species, and the feasibility of alternative mitigation options for already developed properties and exceptions for existing uses.

Policy BIO-3.g Provide Landowner Education.

- Landowner education regarding the sensitivity of wetlands and adjacent upland buffer areas will be provided as part of the Natural Resource Information Program called for in Program BIO-1.c. An emphasis will be placed on educating owners of developed properties adjacent to wetlands where minimum upland setback distances are not provided. Information on regulations protecting wetlands and adjacent areas that may contain significant resource values should be available, together with general methods to minimize disturbance and improve habitat values. An updated list of regulatory agencies and their contact information should be maintained as part of the Natural Resource Information Program.

Policy BIO-3.h Evaluate Wetlands Definitions.

- Conduct a study to evaluate whether to continue to rely on the Army Corps of Engineers definition of wetlands outside of the Coastal Zone or to expand the use of the Coastal Zone (or “Cowardin”) definition to the entire county. The study should consider all of the following in developing a recommendation to the Board of Supervisors:

(1) the effect of the expanded wetland definition when coupled with SCA and WCA requirements;

(2) the extent of the geographic areas potentially affected by the expanded definition;

(3) performance of wetland delineations for areas outside the Coastal Zone (in-house staff or consultants);

(4) potential costs and workloads associated with delineations, administration, and appeals;

(5) overall feasibility of implementation and enforcement responsibilities associated with an expanded definition;

(6) benefits and challenges of a consistent definition throughout the county;

(7) what percentage of wetlands would continue to be regulated by the Army Corps of Engineers; and

(8) what percentage of cost could be paid for by the applicant.

GOAL BIO-4. Riparian Conservation. Protect and, where possible, restore the natural structure and function of riparian systems.

Policy BIO-4.1 Restrict Land Use in Stream Conservation Areas.

- A Stream Conservation Area (SCA) is established to protect the active channel, water quality and flood control functions, and associated fish and wildlife habitat values along streams. Development shall be set back to protect the stream and provide an upland buffer, which is important to protect significant resources that may be present and provides a transitional protection zone. Best management practices1 shall be adhered to in all designated SCAs. Best management practices are also strongly encouraged in ephemeral streams not defined as SCAs. Exceptions to full compliance with all SCA criteria and standards may be allowed only if the following is true:

  1. A parcel falls entirely within the SCA; or
  2. Development on the parcel entirely outside the SCA either is infeasible or would have greater impacts on water quality, wildlife habitat, other sensitive biological resources, or other environmental constraints than development within the SCA.

  SCAs are designated along perennial, intermittent, and ephemeral streams as defined in the Countywide Plan Glossary. Regardless of parcel size, a site assessment is required where incursion into an SCA is proposed or where full compliance with all SCA criteria would not be met. An ephemeral stream is subject to the SCA policies if it: (a) supports riparian vegetation for a length of 100 feet or more, and/or (b) supports special-status species and/or a sensitive natural community type, such as native grasslands, regardless of the extent of riparian vegetation associated with the stream. For those ephemeral streams that do not meet these criteria, a minimum 20-foot development setback should be required.

  SCAs consist of the watercourse itself between the tops of the banks and a strip of land extending laterally outward from the top of both banks to the widths defined below (see Figure 2-2). The SCA encompasses any jurisdictional wetland or unvegetated other waters within the stream channel, together with the adjacent

uplands, and supersedes setback standards defined for WCAs. Human-made flood control channels under tidal influence are subject to the Bayland Conservation policies. The following criteria shall be used to evaluate proposed development projects that may impact riparian areas:

City-Centered Corridor:

- For parcels more than 2 acres in size, provide a minimum 100-foot development setback on each side of the top of bank.
- For parcels between 2 and 0.5 acres in size, provide a minimum 50-foot development setback on each side of the top of bank.
- For parcels less than 0.5 acres in size, provide a minimum 20-foot development setback. The developed portion(s) of parcels (less than 0.5 acres in size) located behind an existing authorized flood control levee or dike are not subject to a development setback.
- Regardless of parcel size, an additional buffer may be required based on the results of a site assessment. A site assessment may be required to confirm the avoidance of woody riparian vegetation and to consider site constraints, presence of other sensitive biological resources, options for alternative mitigation, and determination of the precise setback. Site assessments will be required and conducted pursuant to Program BIO-4.g, Require Site Assessment.

Coastal, Inland Rural, and Baylands Corridors:

- For all parcels, provide a development setback on each side of the top of bank that is the greater of either (a) 50 feet landward from the outer edge of woody riparian vegetation associated with the stream or (b) 100 feet landward from the top of bank. An additional setback distance may be required based on the results of a site assessment. A site assessment may be required to confirm the avoidance of woody riparian vegetation and to consider site constraints, presence of other sensitive biological resources, options for alternative mitigation, and determination of the precise setback. Site assessments will be required and conducted pursuant to Program BIO-4.g, Require Site Assessment. SCAs shall be measured as shown in Figure 2-2.

Allowable uses in SCAs in any corridor consist of the following, provided they conform to zoning and all relevant criteria and standards for SCAs:

- Existing permitted or legal nonconforming structures or improvements, their repair, and their retrofit within the existing footprint;
- Projects to improve fish and wildlife habitat;
- Driveway, road and utility crossings, if no other location is feasible;
- Water-monitoring installations;
- Passive recreation that does not significantly disturb native species;
- Necessary water supply and flood control projects that minimize impacts to stream function and to fish and wildlife habitat;
- Agricultural uses that do not result in any of the following:
    a. The removal of woody riparian vegetation;

b. The installation of fencing within the SCA that prevents wildlife access to the riparian habitat within the SCA;

c. Animal confinement within the SCA; and

d. A substantial increase in sedimentation.

Policy BIO-4.2 Comply with SCA Regulations.

- Implement established setback criteria for protection of SCAs through established discretionary permit review processes and/or through adoption of new ordinances. Environmental review shall be required where incursion into an SCA is proposed and a discretionary permit is required. In determining whether allowable uses are compatible with SCA regulations, development applications shall not be permitted if the project does any of the following:

  - Adversely alters hydraulic capacity;
  - Causes a net loss in habitat acreage, value, or function;
  - Degrades water quality.

Policy BIO-4.3 Manage SCAs Effectively.

- Review proposed land divisions in SCAs to allow management of a stream by one property owner to the extent possible.

Policy BIO-4.4 Promote Natural Stream Channel Function.

- Retain and, where possible, restore the hydraulic capacity and natural functions of stream channels in SCAs. Discourage alteration of the bed or banks of the stream, including filling, grading, excavating, and installation of storm drains and culverts. When feasible, replace impervious surfaces with pervious surfaces. Protect and enhance fish habitat, including through retention of large woody debris, except in cases where removal is essential to protect against property damage or prevent safety hazards. In no case shall alterations that create barriers to fish migration be allowed on streams mapped as historically supporting salmonids. Alteration of natural channels within SCAs for flood control should be designed and constructed in a manner that retains and protects the riparian vegetation, allows for sufficient capacity and natural channel migration, and allows for reestablishment of woody trees and shrubs without compromising the flood flow capacity where avoidance of existing riparian vegetation is not possible.

Policy BIO-4.5 Restore and Stabilize Stream Channels.

- Pursue stream restoration and appropriate channel redesign where sufficient right-of-way exists that includes the following: a hydraulic design, a channel plan form, composite channel cross-section that incorporates low flow and bankfull channels removal and control of invasive exotic plant species, and biotechnical bank stabilization methods to promote quick establishment of riparian trees and other native vegetation.

Policy BIO-4.6 Control Exotic Vegetation.

- Remove and replace invasive exotic plants with native plants as part of stream restoration projects and as a condition of site-specific development approval in an SCA, and include monitoring to prevent reestablishment.

Policy BIO-4.7 Protect Riparian Vegetation.

- Retain riparian vegetation for stabilization of streambanks and floodplains, moderating water temperatures, trapping and filtering sediments and other water pollutants, providing wildlife habitat, and aesthetic reasons.

Policy BIO-4.8 Reclaim Damaged Portions of SCAs.

- Restore damaged portions of SCAs to their natural state wherever possible, and reestablish as quickly as possible any herbaceous and woody vegetation that must be removed within an SCA, replicating the structure and species composition of indigenous native riparian vegetation.

Policy BIO-4.9 Restore Culverted Streams.

- Replace storm drains and culverts in SCAs with natural drainage and flood control channels wherever feasible. Reopening and restoring culverted reaches of natural drainages should be considered part of review of development applications on parcels containing historic natural drainages where sufficient land area is available to accommodate both the reopened drainage and project objectives. Detailed hydrologic analysis may be required to address possible erosion and flooding implications of reopening the culverted reach, and to make appropriate design recommendations. Incentives should be provided to landowners in restoring culverted, channelized, or degraded stream segments. Where culverts interfere with fish migration but replacement is not possible, modify culverts to allow unobstructed fish passage.

Policy BIO-4.10 Promote Interagency Cooperation.

- Work in close cooperation with flood control districts, water districts, and wildlife agencies in the design and choice of materials for construction and alterations within SCAs.

Policy BIO-4.11 Promote Riparian Protection.

- Support agencies, organizations, and programs in Marin County that protect, enhance, and restore riparian areas.

Policy BIO-4.12 Support and Provide Riparian Education Efforts.

- Educate the public and County staff about the values, functions, and importance of riparian areas. Landowner education regarding the sensitivity of riparian corridors will be provided as part of the Natural Resource Information Program called for in Program BIO-1.c. An emphasis will be placed on public outreach to owners of developed properties encompassing or adjacent to SCAs where minimum setback distances are not provided. Information on regulations protecting riparian corridors should be available, together with general methods to minimize disturbance and improve habitat values. An updated list of regulatory agencies and their contact information should be maintained as part of the Natural Resource Information Program.

Policy BIO-4.13 Provide Appropriate Access in SCAs.

- Ensure that public access to publicly owned land within SCAs respects the environment, and prohibit access if it will degrade or destroy riparian habitat. Acquire public lands adjacent to streams where possible to make resources more

accessible and usable for passive recreation, and to protect and enhance streamside habitat.

Policy BIO-4.14 Reduce Road Impacts in SCAs.

- Locate new roads and roadfill slopes outside SCAs, except at stream crossings, and consolidate new road crossings wherever possible to minimize disturbance in the SCA. Require spoil from road construction to be deposited outside the SCA, and take special care to stabilize soil surfaces.

Policy BIO-4.15 Reduce Wet Weather Impacts.

- Ensure that development work adjacent to and potentially affecting SCAs is not done during the wet weather or when water is flowing through streams, except for emergency repairs, and that disturbed soils are stabilized and replanted, and areas where woody vegetation has been removed are replanted with suitable species before the beginning of the rainy season.

Policy BIO-4.16 Regulate Channel and Flow Alteration.

- Allow alteration of stream channels or reduction in flow volumes only after completion of environmental review, commitment to appropriate mitigation measures, and issuance of appropriate permits by jurisdictional agencies based on determination of adequate flows necessary to protect fish habitats, water quality, riparian vegetation, natural dynamics of stream functions, groundwater recharge areas, and downstream users.

Policy BIO-4.17 Continue Collaboration with the Marin Resource Conservation District.

- Continue to collaborate with, support, and participate in programs provided by the Marin Resource Conservation District and the Natural Resource Conservation Service to encourage agricultural operators who conduct farm or ranch activities within a Streamside Conservation Area to minimize sedimentation and erosion to enhance habitat values.

Policy BIO-4.18 Promote the Use of Permeable Surfaces When Hardscapes Are Unavoidable in the SCA and WCA.

- Permeable surfaces rather than impermeable surfaces shall be required wherever feasible in the SCA and WCA.

Policy BIO-4.19 Maintain Channel Stability.

- Applicants for development projects may be required to prepare a hydraulic and/or geomorphic assessment of on-site and downstream drainageways that are affected by project area runoff. This assessment should be required where evidence that significant current or impending channel instability is present, such as documented channel bed incision, lateral erosion of banks (e.g., sloughing or landsliding), tree collapse due to streambank undermining and/or soil loss, or severe in-channel sedimentation, as determined by the County. Characteristics pertinent to channel stability would include hillslope erosion, bank erosion, excessive bed scour or sediment deposition, bed slope adjustments, lateral channel migration or bifurcation, channel capacity, and the condition of riparian vegetation. The hydraulic and/or geomorphic assessment shall include on-site channel or drainageway segments over which the applicant has control or access. In the event that project development would result in or further exacerbate existing channel instabilities, the applicant could

either propose his/her own channel stabilization program subject to County approval or defer to the mitigations generated during the required environmental review for the project, which could include maintenance of peak flows at pre- and post-project levels, or less. Proposed stabilization measures shall anticipate project-related changes to the drainageway flow regime. All project improvements should be designed to minimize flood hydrograph peak flow or flood volume increases into drainage courses. To this end, design features such as porous pavement, pavers, maximizing overall permeability, drainage infiltration, disconnected impervious surfaces, swales, biodetention, green roofs, etc., should be integrated into projects as appropriate. For projects subject to discretionary review, the applicant may be required, as appropriate, to submit a pre-and post-project hydrology and hydraulic report detailing the amount of new impervious surface area and accompanying surface runoff from all improvement areas, including driveways — with a goal of zero increase in runoff (no net increase in peak off-site runoff). The applicant may be required to participate in a peak stormwater runoff management program developed pursuant to new Program BIO-4.20.

Policy BIO-4.20 Minimize Runoff.

- In order to decrease stormwater runoff, the feasibility of developing a peak stormwater management program shall be evaluated to provide mitigation opportunities such as removal of impervious surface or increased stormwater detention in the watershed.

Policy BIO-4.a Adopt Expanded SCA Ordinance.

- Adopt a new SCA ordinance that would implement the SCA standards for parcels traversed by or adjacent to a mapped anadromous fish stream and tributary. Such an ordinance could, by way of example, require compliance with the incorporation of best management practices into the proposed project and could consider modest additions to existing buildings that would not result in significant impact to riparian resources, such as additions that do not exceed 500 square feet of total floor area and that do not increase the existing horizontal encroachment into the SCA, provided a site assessment first confirms the absence of adverse impacts to riparian habitats. As part of the new ordinance, consider including additional incentives, such as reduced fees or other similar incentives, to reduce the extent of existing development within an SCA or improve conditions that may be impacting sensitive resources.

Policy BIO-4.b Reevaluate SCA Boundaries.

- Beginning with the City-Centered Corridor and smaller parcels, conduct a comprehensive study to reevaluate standards used to protect SCAs and regulate development adjacent to streams. The study shall consider available data on stream protection and management standards, their effectiveness, and the effectiveness of the current standards used in Marin County, including the 50- and 100-foot setback distances (plus additional setbacks from the edge of riparian vegetation where applicable). The study shall consider stream functions on a watershed-level basis, and include input from professionals such as a fluvial geomorphologist, hydrologist, wildlife biologist, and vegetation ecologist, together with resource agencies and interested members of the public. Each SCA should encompass all woody riparian vegetation and be of sufficient width to filter sediments and other pollutants before they enter the stream channel. Careful study may be needed to distinguish woody riparian vegetation from other types of woodland or forest vegetation in some areas.

Policy BIO-4.c Prepare County Stream Map.

- Use the County GIS to map perennial, intermittent, and, where feasible, ephemeral streams subject to SCA policies. Use the resulting mapping in conjunction with USGS maps and the "ephemeral stream" definition to confirm SCAs on parcels proposed for development. Add to and update the map on an ongoing basis as additional streams are surveyed.

Policy BIO-4.d Establish Functional Criteria for Land Uses in SCAs.

- Develop detailed criteria for protection of riparian functions, and identify methods for their use in evaluating proposed development.

Policy BIO-4.e Identify Proposals Within SCAs.

- Determine whether a proposed development falls wholly or partially within an SCA, through agency review by County staff, and as necessary by a qualified professional, of discretionary application materials and site inspection.

Policy BIO-4.f Identify Potential Impacts to Riparian Systems.

- At the time of a development application, evaluate potential impacts on riparian vegetation and aquatic habitat, and incorporate measures to protect riparian systems into the project design and construction. Retain and minimize disturbance to woody and herbaceous riparian vegetation in SCAs and adjacent areas. (Tree growth may be cleared from the stream channel where removal is essential to protect against property damage or prevent safety hazards.)

Policy BIO-4.g Require Site Assessment.

- Require development applications to include the submittal of a site assessment prepared by a qualified professional where incursions into the SCA are proposed, or adverse impacts to riparian resources may otherwise occur. Unless waived, the qualified professional shall be hired by Marin County. The site assessment shall be paid for by the applicant and considered in determining whether any adverse direct or indirect impacts on riparian resources would occur as a result of the proposed development, whether SCA criteria and standards are being met, and to identify measures necessary to mitigate any significant impacts. The site assessment may also serve as a basis for the County to apply restrictions in addition to those required by State and federal regulations.

Policy BIO-4.h Comply with SCA Criteria and Standards.

- All development permit applications shall be reviewed for conformity with these SCA policies, criteria, and standards and in accordance with the California Environmental Quality Act. Proposals that do not conform to SCA policies, and cannot be modified or mitigated to conform, shall be denied. If a proposal involves the creation of a new parcel that is wholly or partially in an SCA, the land division shall be designed to ensure that no development occurs within the SCA.

Policy BIO-4.i Replace Vegetation in SCAs.

- When removal of native riparian vegetation is unavoidable in an SCA, and mitigation is required, require establishment of native trees, shrubs, and ground covers within a period of five years at a rate sufficient to replicate, after a period of five years, the appropriate density and structure of vegetation removed. Require replacement and

enhancement planting to be monitored and maintained until successful establishment provides for a minimum replacement or enhancement ratio of 2:1.

Policy BIO-4.j Continue Funding Fencing of Sensitive Stream Areas.

- Encourage continued funding in conjunction with the Marin Resource Conservation District, the Natural Resource and Conservation Service, and other relevant agencies, to pay the cost of fencing sensitive streamside areas (on both public lands and private property) that could be impacted by cattle grazing.

Policy BIO-4.k Locate Trails Appropriately.

- Situate trails at adequate distances from streams to protect riparian and aquatic habitat and wildlife corridors. Trails may occasionally diverge close to the top of bank to provide visual access and opportunities for interpretive displays on the environmental sensitivity of creek habitats. (See policies and programs in the Trails Section of this Element.)

Policy BIO-4.l Monitor Stream Conservation Areas.

- Establish a system of monitoring SCAs, which may include mapping fenced streams and stream restoration areas to ensure the protection of vegetation, soils, water quality, and wildlife habitat along streams.

Policy BIO-4.m Encourage Conservation Plans Within the Stream Conservation Area.

- Continue to collaborate with the Marin Resource Conservation District to encourage and support the continued implementation of the Marin Coastal Watersheds Permit Coordination Program, especially the preparation of management and conservation plans where appropriate for agricultural activities within the Stream Conservation Areas.

Policy BIO-4.n Provide Information to Reduce Soil Erosion and Sedimentation.

- Provide information and fact sheets on programs offered by the Marin Resource Conservation District at the Community Development Agency front counter to landowners and applicants who submit development proposals within the Streamside Conservation Area in the Stemple, Walker, and Lagunitas creek watersheds.

Policy BIO-4.o Consider Culvert Restoration.

- As part of the expanded SCA ordinance, consider additional policy language to encourage reopening culverted reaches and restoring channelized reaches of natural drainages. This may include adjustments in minimum standard setback distances where site constraints prevent complete compliance along the restored or enhanced channel reach. A detailed analysis may be required to demonstrate restoration feasibility and address possible effects on erosion and flooding potential. Incentives may be available to landowners to encourage restoration and enhancement efforts.

Policy BIO-4.p Implement NPDES Phase II.

- Continue to implement NPDES Phase II permit requirements relating to peak flow controls to ensure that project related and cumulative impacts to peak flows are minimized or avoided through conditions on project approval as required by the ordinances.

Policy BIO-4.q Develop Standards Promoting Use of Permeable Materials.

- Review existing permit requirements for development in SCAs and WCAs, and recommend additional standards for project review and corrective measures as needed to protect SCAs and WCAs from inappropriate ministerial and discretionary development. Develop additional standards for requiring the use of best management practices, including measures such as the use of permeable materials in the SCA and WCA. A checklist of Best Management Practices should be made available to applicants.

Policy BIO-4.r Review Septic System Setbacks in SCA and WCA.

- Review existing septic requirements within SCAs and WCAs, and revise requirements as necessary to provide monitoring and to protect SCAs and WCAs from impacts associated with septic systems. Consider adopting larger setback standards applied to new development for septic systems and their associated leachfields.

Policy BIO-4.s Continue Collaboration with the Marin Resource Conservation District and Agricultural Commissioner.

- Continue to collaborate with, support, and participate in programs provided by the Marin Resource Conservation District, the Natural Resource Conservation Service, and the Agricultural Commissioner's Office to encourage agricultural operators who conduct farm or ranch activities within a Streamside Conservation Area to minimize pesticide use and activities that cause sedimentation and erosion, to enhance habitat values.

Policy BIO-4.t Collaborate with Groups to Address Implementation of Protections to SCAs and WCAs.

- Collaborate with local, regional, State, and federal organizations (Marin Organic, MALT, SPAWN, Marin Audubon, RCD, Fish and Game, RWQCB, Sierra Club, Farm Bureau, Trout Unlimited, and affected property owners) to address long term habitat protection and develop funding mechanisms to address the issue.

Policy BIO-4.u Investigate Tax Delinquent Properties.

- Investigate conversion of tax delinquent properties in SCAs into public ownership.

GOAL BIO-5: Baylands Conservation. Preserve and enhance the diversity of the baylands ecosystem, including tidal marshes and adjacent uplands, seasonal marshes and wetlands, rocky shorelines, lagoons, agricultural lands, and low-lying grasslands overlying historical marshlands. In particular, historic marshland in the Richardson Bay and Bothin Marsh area should be included in the resource mapping and analysis to determine if these parcels meet the criteria for inclusion in the Baylands Corridor. This mapping and analysis should do the following:

- Identify existing vegetative cover and sensitive features, such as streams, wetlands, and occurrences of special-status species;

- Use focal species and other similar ecological tools to determine the interrelationship between baylands and uplands;

- Identify methods to maintain connectivity between sensitive habitat features and baylands;

- Specify criteria and thresholds used in determining the extent of upland habitat essential to the baylands ecosystem;

- Make recommendations on an appropriate biologically based boundary if the Baylands Corridor is to be expanded; and

- Identify lands that provide habitat, could be restored to provide habitat, or provide protection from sea level rise. Completion of the analysis does not require on-site evaluations. All parcels added to the Baylands Corridor as a result of this study are subject to Baylands Corridor regulations in effect at that time.

Policy BIO-5.1 Protect the Baylands Corridor.

- Ensure that baylands and large, adjacent essential uplands are protected, and encourage enhancement efforts for baylands, including those in the Baylands Corridor. The following criteria shall be used to evaluate proposed development projects that may impact the Baylands Corridor:

  - For large parcels (over 2 acres in size), adhere to development setback standards for areas qualifying for protection under the WCA and SCA, but increase setback distances as necessary to ensure that hydrologically isolated features such as seasonal wetlands and freshwater marshes are adequately linked to permanently protected habitat. These additional development setbacks shall serve to prevent fragmentation and preserve essential upland buffers in the Baylands Corridor.
  - For small parcels (2 acres or less in size), encourage property owners where suitable habitat exists to preserve up to 10 feet landward of mean high tide as a species refuge area for high water events. Site constraints, opportunities for avoidance of sensitive biological resources, and options for alternative mitigation, may also be considered.
  - Minor redevelopment involving less than 25% of a structure on a residential or industrial parcel that is already filled and at least 50% developed may be exempted from the requirements for a site assessment, provided that no additional filling or modification to wetlands occurs. (See BIO-5.2.)

Policy BIO-5.2 Limit Development and Access.

- Ensure that development does not encroach into sensitive vegetation and wildlife habitats, damage fisheries or aquatic habitats, limit normal wildlife range, or create barriers that cut off access to food, water, or shelter for wildlife. Require an environmental assessment where development is proposed within the Baylands Corridor.

Policy BIO-5.3 Leave Tidelands in Their Natural State.

- Require that all tidelands be left in their natural state to respect their biological importance to the estuarine ecosystem. Any modifications should be limited to habitat restoration or enhancement plans approved by regulatory agencies.

Policy BIO-5.4 Restore Marshlands.

- Enhance wildlife and aquatic habitat value of diked bay marshlands, and encourage land uses that provide or protect wetland or wildlife habitat and do not require diking, filling, or dredging.

Policy BIO-5.5 Protect Freshwater Habitats.

- Preserve and, where possible, expand habitats associated with freshwater streams, seasonal wetlands, and small former marshes to facilitate the circulation, distribution, and flow of fresh water, and to enhance associated habitat values.

Policy BIO-5.6 Use Flood Basins for Seasonal Habitat.

- Utilize natural or manage manmade flood basins to provide seasonal habitat for waterfowl and shorebirds, and prohibit development in these basins to protect habitat values.

Policy BIO-5.7 Limit Access to Wetlands.

- Design public access to avoid or minimize disturbance to wetlands, necessary buffer areas, and associated important wildlife habitat while facilitating public use, enjoyment, and appreciation of bayfront lands.

Policy BIO-5.8 Control Shoreline Modification.

- Ensure that any modifications to the shoreline do not result in a loss of biodiversity or opportunities for wildlife movement. Possible modifications may include construction of revetments, sea walls, and groins, as permitted by State and federal agencies.

Policy BIO-5.9 Allow Limited Agricultural Use.

- Encourage only those agricultural uses that are compatible with protection of wetlands and other sensitive resources to remain in baylands. Conversion of non-agricultural lands to agriculture should occur only if wetlands or other sensitive biological resources would not be lost or adversely affected. Where possible, wetlands should be enhanced and restored as part of agricultural use or conversion.

Policy BIO-5.10 Encourage Acquisition of Essential Baylands.

- Continue to acquire large, essential baylands for open space and habitat restoration purposes, and support public and private partnerships working to acquire baylands.

Program BIO-5.a Establish Criteria for Upland Setbacks in the Baylands Corridor.

- During the Development Code update, establish criteria to be used in the review of individual development applications for determining an adequate setback distance in adjacent uplands to serve as a buffer zone between development and remaining or historic tidelands and wetlands. Setbacks should provide for at least the minimum distances necessary to avoid adverse effects of increased human activity and potential disturbance to sensitive biological resources, and to provide essential linkages between important features such as seasonal wetlands, freshwater marsh, and roosting and nesting areas. This should include consideration of possible implications of future sea level rise on existing habitat. Use focus species, locational distribution of sensitive resources, and other ecological tools to establish criteria for determining essential habitat connectivity in site-specific planning that serves to preserve and enhance existing wildlife habitat values.

Program BIO-5.b Provide Landowner Education.

- Landowner education will be provided regarding the sensitivity of baylands and adjacent upland buffer areas as part of the Natural Resource Information Program

called for in Program BIO-1.c. An emphasis will be placed on educating owners of developed properties adjacent to baylands where minimum upland setback distances are not provided. Information on regulations protecting baylands should be available, together with general methods to minimize disturbance and improve habitat values. An updated list of regulatory agencies and their contact information should be maintained as part of the Natural Resource Information Program.

Program BIO-5.c Update Development Code.

- Update the Development Code, redefining the Bayfront Conservation Zone to reflect Baylands Corridor policies as well as including relevant aspects from the current Bayfront Conservation Zone. The updated Development Code shall identify criteria to be used in evaluating proposed development projects, and appropriate development restrictions necessary to protect sensitive biological and wetland resources.

Program BIO-5.d Enforce Tidelands Restrictions.

- Ensure that the Development Code prohibits diking, filling, or dredging in tidelands, unless the area is already developed and currently being dredged. Current dredging operations for maintenance purposes may continue, subject to environmental review, if necessary. In some cases, exceptions may be made for areas that are isolated or limited in productivity. In tidal areas, only land uses that are water dependent shall be permitted, as consistent with federal, State, and regional policy. These include, but are not limited to the following:

  - Ports
  - Water-dependent industry and utilities
  - Essential water conveyance
  - Wildlife refuge and habitat restoration
  - Water-oriented recreation

Exemptions may be granted for emergency or precautionary measures taken in the public interest, such as protection from flooding or other natural hazards. Removal of native vegetation shall be discouraged, and secondary effects evaluated, such as potential reduction in available surface water and water quality degradation due to nonpoint discharge. Alteration of hydrology should only be allowed when it can be demonstrated that the impact will be beneficial or insignificant.

Program BIO-5.e Enforce Diked Bay Marshlands Requirements.

- Ensure that the updated Development Code allows only those land uses in diked bay marshlands that protect wetland or wildlife habitat and do not require diking, filling, or dredging, including the following:

  - Restoration to tidal status
  - Restoration to seasonal wetlands
  - Appropriate agricultural use
  - Flood basins
  - Wastewater reclamation areas
  - Maintenance and minor expansion of existing development located landward of existing dikes

Other uses that do not require diking, filling, or dredging may be allowed, consistent with zoning, if it can be demonstrated that impacts to baylands are minimized and adequately mitigated. Land uses that provide protection from flood or other natural hazards may be allowed if necessary to protect public health and safety. Existing dredging operations in developed areas may continue, subject to environmental review, if necessary. Priority shall be given to water-oriented uses, such as public access and low-intensity passive recreational and educational opportunities that include habitat protection and enhancement components.

Program BIO-5.f Control Public Access.

- Design public use areas to be clearly marked, to minimize possible conflicts between public and private uses, to provide continuous walkways from the nearest roads to the shoreline and along the shoreline, to be set back from any proposed structure, and to be buffered from wetlands. Restrict access to environmentally sensitive marshland and adjacent habitat, especially during spawning and nesting seasons.

Program BIO-5.g Identify Baylands as a Priority for Open Space Acquisition.

- Designate regionally significant baylands, including tidelands, diked marshlands, and adjacent uplands, as a priority for open space acquisition, particularly in areas known to support essential habitat for special-status species, wetlands, and important habitat linkages for wildlife (see policies and programs in the Open Space and Trails sections of this Element).

Program BIO-5.h Encourage Baylands Protection in Cities and Towns.

- Work with the cities and towns of Corte Madera, Larkspur, Mill Valley, Novato, San Rafael, Sausalito, Belvedere, and Tiburon to protect tidelands and remaining undeveloped, diked historic saltmarsh areas.

Program BIO-5.i Conduct Mapping and Analysis.

- Small parcels not currently subject to tidal influence should be subject to mapping and analysis to determine whether they should be added to or omitted from the Baylands Corridor. In particular, historic marshland in the Richardson Bay and Bothin Marsh area should be included in the resource mapping and analysis to determine if these parcels meet the criteria for inclusion in the Baylands Corridor. This mapping analysis should do the following:

  - Identify existing vegetative cover and sensitive features, such as streams, wetlands, and occurrences of special-status species.
  - Use focal species and other similar ecological tools to determine the interrelationship between baylands and uplands.
  - Identify methods to maintain connectivity between sensitive habitat features and baylands;
  - Specify criteria and thresholds used in determining the extent of upland habitat essential to the baylands ecosystem;
  - Make recommendations on an appropriate biologically based boundary if the Baylands Corridor is to be expanded; and
  - Identify lands that provide habitat, could be restored to provide habitat, or provide protection from sea level rise. Completion of the analysis does not

require on-site evaluations. All parcels added to the Baylands Corridor as a result of this study are subject to Baylands Corridor regulations in effect at that time.

Program BIO-5.j Consider Technical Group.

- Consider establishing a technical working group on an as needed basis to provide scientific expertise in evaluating natural resource issues regarding adequate protections when considering revisions for SCA and WCA regulations, and baylands mapping.

Marin County Code

Marin County Code Chapter 22.27 protects and preserves native trees in the non-agricultural unincorporated areas of Marin County through permit requirements and limited tree removal. Protected trees are named below, in the Native Tree Preservation and Protection Ordinance. Mitigation may include establishment and maintenance of replacement trees onsite; for large properties, a management plan which designates areas of the property for preservation; removal of invasive exotic species; the posting of a bond to cover inspection costs associated with the described measures; a payment of $100 per tree to be deposited into the Tree Replacement Fund managed by the Marin County Open Space District for planting and maintenance of trees and other vegetation.

Marin County Native Tree Preservation and Protection Ordinance

Marin County has adopted a native tree protection and preservation ordinance (Ordinance 3342, adopted May 16, 2002) that defines "protected trees" and regulates their removal. Trees meeting the following criteria are "protected trees" and their removal is prohibited without a permit:

1. Trees on an Unimproved Parcel. The following native trees are protected individually: big-leaf maple (*Acer macrophyllum*), box elder (*A. negundo* var. *californicum*), California buckeye (*Aesculus californica*), white alder (*Alnus rhombifolia*), red alder (*A. rubra*), service-berry (*Amelanchier alnifolia*), giant chinquapin (*Castanopsis chrysophylla*), mountain mahogany (*Cercocarpus betuloides*), hawthorn (*Crataegus douglasii*), Oregon ash (*Fraxinus latifolia*), silk tassel (*Garrya elliptica*), tanbark oak (*Lithocarpus densorus*), wax myrtle (*Myrica californica*), bishop pine (*Pinus muricata*), douglas fir (*Pseudotsuga menziesi*), red elderberry (*Sambucus callicarpa*), coast redwood (*Sequoia sempervirens*), Pacific yew (*Taxus brevifolia*), California nutmeg (*Torreya california*), and California bay (*Umbellularia californica*) with a DBH greater than 10 inches; and Pacific madrone (*Arbutus menziesii*), sargent cypress (*Cupressus sargentii*), coast live oak (*Quercus agrifolia*), canyon live oak (*Q. chrysolepis*), blue oak (*Q. douglasii*), Oregon oak (*Q. garryana*), California black oak (*Q. kelloggsii*), valley oak (*Q. lobata*), chaparral oak (*Q. wislizeni*), narrow-leaved willow (*Salix exigua*), red willow (*S. laevigata*), arroyo willow (*S. lasiolepis*), shining willow (*S. lucida* ssp. *Lasiandra*), Scoulier's willow (*S. scouleriana*), and silica willow (*S. sitchensis*) with a DBH greater than 6 inches.

2. Trees on an Improved Parcel. More than a total of five (5) trees of any native species each of which having a DBH as specified in Attachment 1 (to the Ordinance) where the removal of such trees occurs within any 12 month period on an improved parcel.

3. Trees Required as Condition of Approval. Any tree required to be planted or preserved as a condition of approval of a County discretionary permit application where such tree does not meet one or more of the exemption criteria described in Section 22.75.050 (Exemptions).

Exemptions to the ordinance may be made for trees that are not specifically defined as a protected tree or for other reasons outlined in the ordinance.

SVCSD

City of Sonoma General Plan

GOAL ER-2: Identify, preserve, and enhance important habitat areas and significant environmental resources.

Policy 2.1: Monitor the health of local environmental resources.

Implementation Measure 2.1.1: Work with the Sonoma Ecology Center and other appropriate parties to establish and maintain an inventory of significant local environmental resources and features.

Policy 2.2: Preserve habitat that supports threatened, rare, or endangered species identified by State or federal agencies.

Implementation Measure 2.2.1: Evaluate development applications in terms of potential impacts on significant biological resources.

Policy 2.3: Protect and, where necessary, enhance riparian corridors.

Implementation Measure 2.3.1: Work with the County Water Agency, State Department of Fish and Game, the Sonoma Ecology Center and other interested parties to implement guidelines and regulations for preserving and enhancing riparian corridors and wildlife habitat.

Policy 2.6: Preserve existing trees and plant new trees.

Implementation Measure 2.6.1: Develop amendments to the Tree Ordinance to further protect significant trees on private property.

Implementation Measure 2.6.2: Carry out the programs of the City Tree Planting Plan, including preserving existing trees through the Tree Ordinance and increasing canopy cover, streetscape trees, parking lot shading, and tree maintenance.

Policy 2.9: Require development to avoid potential impacts to wildlife habitat, air quality, and other significant biological resources, or to adequately mitigate such impacts if avoidance is not feasible.

Implementation Measures 2.2.1 and 2.3.1, above.

City of Sonoma Municipal Code

City of Sonoma Tree Ordinance

The City of Sonoma Municipal Code (Chapter 12.08) preserves significant and protected trees. A significant tree is defined as any tree having a single trunk diameter greater than two inches, and a height of more than six feet. A protected tree is any tree designated to be preserved on an approved development plan or as a condition of approval of a tentative map, a tentative parcel map, or other development approval issued by the city. Mitigation for removal of significant and protected trees may consist of one of the following: (1) tree replacement on-site at a minimum 1:1 ratio and 15-gallon box size; (2) tree replacement on public property if the development site is inadequate in size to accommodate the replacement trees (minimum 1:1 ratio and 15-gallon box size); or (3) an in-lieu payment of $100.00 per 15-gallon replacement tree on condition that all such payments shall be used for tree-related educational projects and/or planting programs of the city (Chapter 12.08.035E).

The City of Sonoma Municipal Code (Chapter 12.09) requires the protection and preservation of heritage trees. A heritage tree is defined as a tree or group of trees that: have historical significance or have taken on the aura of historical appeal; are mutually dependent upon each other for survival; are considered an outstanding specimen of its species; are either individually or collectively 50 inches or more in diameter measured at 24 inches above natural grade; or have been recommended as such by the parks and recreation commission and dedicated and accepted by the city council of Sonoma.

Sonoma County General Plan

The regulatory mechanisms for regional oversight of natural resources in the project area stem from policies contained in the Sonoma County General Plan (Sonoma County, 2008). Relevant goals, objectives and policies from the General Plan pertinent to wetlands and biological resource conservation issues in the project area are presented below.

Conservation of Biotic Resources

GOAL RC-5: Promote and maintain the County's diverse plant and animal communities and protect biotic resources from development activities.

> *Objective RC-5.1*: Identify and encourage protection of areas with important wildlife habitats and woodland resources.
>
> *Objective RC-5.2*: Encourage the use of native plants in landscaping to reduce the risk of introducing exotic plant species into wildlife areas.
>
> *Objective RC-5.3*: Recognize and preserve the Laguna de Santa Rosa and the San Pablo Bay area as biotic resource areas and historic water retention basins of particular significance to Sonoma County's environment.
>
> *Objective RC-5.4*: Identify important valley oak habitat areas and protect and enhance valley oaks and valley oak woodlands in these areas.

Policy RC-5a: Apply the "Resources and Rural Development" land use category where it is the County's intent to manage and conserve natural resources, including wildlife and vegetation habitats while allowing a compatible level of residential development.

Policy RC-5b: On discretionary projects, use native or compatible non native species to the extent possible for landscaping. Discourage use of exotics, such as pampas grass and scotch broom.

Policy RC-5c: Make the preservation of significant native oaks and other native trees a primary consideration in the review of development projects.

Policy RC-5e: Encourage landowners to voluntarily participate in the County's Landmark Tree Program.

Policy RC-5f: Designate basins, flood plains, terraces, and alluvial fans that have Clear Lake-Reyes, Haire-Diablo, Huichica-Wright-Zamora, Pajaro, or Yolo-Cortina-Pleasanton soil associations, as identified by soils data from the United States Department of Agriculture, Natural Resources Conservation Service, as important valley oak habitat areas on Figures RC-2a through RC-2i.

Policy RC-5g: Add a Valley Oak Habitat combining district to the zoning ordinance. Rezone to the Valley Oak Habitat combining district any lands designated as important valley oak habitat areas on Figures RC-2a through RC-2i.

Policy RC-5h: Provide for voluntary programs to protect and enhance valley oaks and valley oak woodlands in designated important valley oak habitat areas. Develop and require compliance with standards and guidelines for mitigating losses of valley oaks and valley oak woodlands in designated important valley oak habitat areas.

Protection of Rare and Endangered Species

GOAL RC-6: Identify and protect rare and endangered species and their environment.

Objective RC-6.1: Identify the locations of rare and endangered plants and animals.

Objective RC-6.2: Require that any development on lands containing rare and endangered species be done in a manner which protects the resource or mitigates adverse impacts. The County shall use the following policies in addition to those of the Open Space Element, to achieve the above objectives:

Policy RC-6a: Maintain and update the "Biotic Resource" data maps which show the locations of known rare and endangered species, and use them in the environmental review process for development permits.

Policy RC-6b: Protection for rare and endangered species wetlands and other biotic resources not indicated on Figure OS-3 on page 183 shall be accomplished through compliance with applicable state and federal law.

Policy RC-6c: Notwithstanding the densities shown on the land use maps, provide for creation of separate parcels of land where necessary to establish sites for the preservation of rare and endangered species and other biotic resources.

Protection and Conservation of Marine Fishery and Harbor Resources

GOAL RC-7: Protect and conserve the quality of ocean, marine and estuarine environments for their scenic, economic and environmental values.

Objective RC-7.1: Promote protection for the native marine and shoreline plant and animal communities along the Pacific coastline and San Pablo Bay shoreline.

Policy RC-8c: Use the policies of the Sonoma County Coastal Plan to protect wetlands, estuaries, and other coastal resources.

Protection and Conservation of Freshwater Fishery Resources

GOAL RC-8: Encourage effective management of freshwater fishery resources and balance competing agricultural, development, and mining needs with protection of the stream environment.

Objective RC-8.1: Identify sources of sediment and erosion and minimize their impact on local water courses.

Objective RC-8.2: Manage riparian corridors along streams to provide protection for fish habitat.

Policy RC-8c: Design public and private projects to minimize damage to the stream environment and to maintain instream flows.

Policy RC-8d: Avoid substantial alteration of the stream channel and riparian vegetation in the design of flood control projects on streams with substantial natural areas.

Policy for Critical Habitat Areas

GOAL OS-4: Identify critical habitat areas and assure that the quality of these natural resources is maintained and not adversely affected by development activities.

Objective OS-4.1: Designate important wetlands, marshes and other critical habitats and maintain low intensity land uses in these areas.

Objective OS-4.2: Establish development guidelines to protect designated critical habitat areas.

Policy OS-4a: Add a Biotic Resources combining district to the zoning ordinance.

Policy OS-4b: Rezone to the Biotic Resources combining district any lands designated as a critical habitat area.

Policy OS-4c: Require the preparation of a biotic resource assessment to develop mitigation measures if the Planning Director determines that a discretionary project could adversely impact a designated critical habitat area.

Policy OS-4d: Establish building envelopes to avoid designated critical habitat areas on tentative maps.

Policy OS-4e: Require on building permits a minimum setback of 50 feet from the edge of any wetlands which are within a critical habitat area. Exempt existing farm buildings and allow them to be expanded or modified.

Policy for Riparian Corridors

GOAL OS-5: Provide protective measures for riparian corridors along selected streams which balance the need for agricultural production, urban development, timber and mining operations, and flood control with preservation of riparian values.

Objective OS-5.1: Classify important streams with native vegetation as "riparian corridors". Develop guidelines to protect and manage these areas as valuable resources.

Policy OS-5c: Establish streamside conservation areas, measured from the top of the higher bank as determined by SCWA, for designated riparian corridors as follows:

1) Urban Riparian Corridors: 50'
2) Russian River Riparian Corridor: 200'
3) Flatland Riparian Corridors: 100'
4) Upland Riparian Corridors: 50'

Policy OS-5e: Allow or consider allowing the following uses within any streamside conservation area: 1) Timber operations conducted in accordance with an approved timber harvest plan; 2) Streamside maintenance; 3) Road crossings and street crossings, utility line crossings; 4) Mining operations conducted in accordance with the County Surface Mining and Reclamation Ordinance; 5) Permitted summer dams; 6) Grazing and similar agricultural production activities not involving structures or cultivation; 7) Agricultural cultivation; 8) Vegetation removal as part of an integrated pest management program administered by the Agricultural Commissioner; 9) Creekside bikeways, trails and parks within urban riparian corridors; 10) Development authorized by waiver under OS-5f.

Policy OS-5f: Prohibit, except as allowed by OS-5e, structures, roads and utility lines and parking lots within any streamside conservation area. Consider waiver of this prohibition if: 1) it makes a lot unbuildable and vegetation removal is minimized; 2) no significant disturbance of riparian habitat would occur, or 3) the use involves only the maintenance, restoration or minor expansion of an existing structure. A biotic resource assessment may be required prior to issuance of a waiver.

Sonoma County Code

Sonoma County Tree Ordinance. The Sonoma County Tree Protection and Replacement Ordinance No. 4014 (County Code Article IV, Section O) sets preservation and protection standards for protected trees with a 9-inch or greater diameter at breast height (Sonoma County, 2006a). Protected trees include big leaf maple (*Acer macrophyllum*), black oak (*Quercus kelloggii*), blue oak (*Quercus douglasii*), coast live oak (*Quercus agrifolia*), interior live oak (*Quercus wislizenii*), madrone (*Arbutus menziesii*), oracle oak (*Quercus morehus*), Oregon oak (*Quercus garryana*), redwood (*Sequoia sempervirens*), valley oak (*Quercus lobata*), California bay (*Umbellularia californica*) and their hybrids (Article 1, Section 26C-12). Only mature valley oaks are considered a protected tree of special significance. The number and size of replacement

plantings is calculated using one of the two arboreal value charts as instructed in the ordinance. Arboreal Value Chart #1 requires analysis to be completed in the construction area and requires 100 percent replacement or in lieu fees. Arboreal Value Chart #2 requires analysis of the entire site but allows for removal of up to 50 percent of the arboreal value. Compensation for the loss of greater than 50 percent requires replacement through use of the chart.

The Sonoma County Ordinance No. 4991, County Code Chapter 26, Article 67 protects valley oak trees and valley oak woodlands within the Valley Oak Habitat district boundaries. This ordinance requires mitigation for removal of any large valley oak measuring sixty inches or greater at diameter breast height[1] within the Valley Oak Habitat district boundaries. Mitigation for tree removal may be in the form of (1) tree replacement by planting valley oak seedlings on the subject property or on another site in the county having the geographic, soil, and other conditions necessary to sustain a viable population of valley oaks; (2) retaining other valley oak trees on the subject property; (3) a combination of measures (1) and (2); or (4) paying an in-lieu fee, which shall be used exclusively for valley oak planting programs in the County.

The Sonoma County Ordinance No. 3651, County Code Chapter 26D preserves heritage and landmark trees that have been nominated and accepted by the County as heritage or landmark trees. This ordinance requires the protection and preservation of heritage and landmark trees.

CEQA Implementation. Sonoma County Code Chapter 23A, the Environmental Quality Ordinance of Sonoma County, discloses to the public the reasons why decision makers approve a project subject to CEQA review in the manner chosen; defines the duties of the County Clerk, the Lead Department, the Committee, and the Planning Director as they relate to CEQA; and defines the County's duties as a responsible agency under CEQA.

Novato SD

City of Novato General Plan

The regulatory mechanisms for regional oversight of natural resources in the project area stem from policies contained in the Novato General Plan (Novato, 2005). The Novato General Plan combines the requirements for the Open Space and Conservation Element into one chapter entitled *Environment.* Relevant goals, objectives and policies from the General Plan pertinent to wetlands and biological resource conservation issues in the project area are presented below.

> *Policy 1: Ecology of Creeks and Streams*. Preserve and enhance the ecology of creeks and streams.
>
> - *Program 1.1*: Establish a Stream Protection Zone for watercourses shown on EN Map 1 and their significant tributaries. The width of the Stream Protection Zone shall include the watercourse itself between the tops of the banks (existing height) and a strip of land extending 50 feet laterally outward from the top of each bank.

[1] A valley oak may have multiple trunks which stem from the same root mass. The diameter around the cluster of trunks (cumulative diameter) would be measured as the diameter breast height (Helfrich, 2006).

Include provisions to extend the Stream Protection Zone where critical habitat areas and riparian vegetation exist and can be restored, wherever feasible, or to reduce the zone if physical conditions so warrant. Establish standards to protect riparian habitat, water quality, provide long-term flood management and establish continuous wildlife corridors. Require a permit for any excavation, filling, or grading; removal or planting of vegetation; construction, alteration, or removal of any structure; or alteration of any embankment that is proposed in the Stream Protection Zone. Permits shall include mitigations to protect wildlife and to protect, enhance, and restore native vegetation. The permit shall take into account aesthetic, scenic, environmental, and recreational impacts or benefits.

Policy 2: Vegetation in Watercourse Areas. Protect vegetation in watercourse areas.

- *Program 2.1*: Require mitigation for loss of riparian vegetation. On-site mitigation is preferred wherever possible.
- *Program 2.2*: Encourage planting of native vegetation and discourage planting of exotic, invasive vegetation.
- *Program 2.3*: Develop educational programs to inform property owners about protecting native vegetation in watercourse areas.

Policy 3: Wildlife Habitat. Endeavor to preserve and enhance wildlife habitat areas in watercourse areas and control human use of these areas as necessary to protect them.

- *Program 3.1*: Refer for comment to the State Department of Fish and Game and Marin County Flood Control District any grading, filling, or construction proposal that would alter a watercourse shown on EN Map 1.

Policy 4: Erosion Control. Minimize soil disturbance and surface runoff in the Stream Protection Zones. Pursuant to the City's grading ordinance, work in and adjacent to the zones shall be conducted during the dry season only, at times when the Community Development Department determines that surface runoff will be minimal or containable.

Policy 5: Habitat Restoration. Restore damaged portions of riparian areas to their natural state, wherever feasible.

- *Program 5.1*: Continue to participate in the Petaluma River project to restore marshland habitat and provide public access as long as it does not adversely affect wildlife habitat.
- *Program 5.2*: Prohibit further degradation and require restoration of previously-degraded riparian areas as a condition of development approval when restoration is feasible, taking into account the project's size and cumulative impacts.
- *Program 5.3*: Encourage riparian restoration as part of permit approval.

Policy 6: Public Access. Manage public access to watercourses shown on EN Map 1 in a manner that will not degrade the habitat.

- *Program 6.1*: Develop guidelines for public access to watercourse areas. Include guidelines dealing with appearance and view preservation.
- *Program 6.2*: Evaluate proposals for trails and waterway access relative to potential impact on habitat value. Consequences such as wetland impacts, removal or damage

to trees or other habitats, or invasion by domestic animals should be avoided. Where avoidance is not possible, alternative access should be sought.

Policy 7: Water Quality. Encourage protection of water resources from pollution and sedimentation, and preserve their environmental and recreation values.

- *Program 7.1*: Develop practices to protect water quality and natural ecosystems in the Stream Protection area.

Policy 9: Determination of Wetlands. Recognize the U.S. Army Corps of Engineers (ACE) as the designated permitting agency that regulates wetlands. In regulating wetland activities, the ACE consults with other agencies and organizations including but not limited to U.S. Fish and Wildlife and State Department of Fish and Game.

- *Program 9.1*: The City shall establish programs and ordinances that develop a process for determining, regulating and permitting wetlands.

Policy 10: Wetlands Ecology. Preserve and enhance wetlands ecology.

- *Program 10.1*: Establish Wetland Protection Standards for wetlands as defined in EN Policy 9. Include provisions to extend the Wetlands Protection area where critical habitat areas (including uplands) and riparian vegetation exist or to reduce the area if physical conditions so warrant. Establish standards and require a permit for any excavation, filling, or grading; removal or planting of vegetation; construction, alteration, or removal of any structure; or alteration of any embankment that is proposed in or near a Wetland area. Permits shall include mitigations to protect wildlife and to protect and replace native vegetation, and shall take into account aesthetic, scenic, environmental, and recreational benefits.
- *Program 10.2*: Require development plans to avoid wetlands to the maximum extent feasible. If development is permitted within wetlands, require mitigation at 2:1 replacement to provide wetland habitat of the same type as the lost habitat. Require off-site mitigation of wetlands impacts in cases where on-site mitigation is not possible. Off-site mitigation sites should be as close to the project site as possible.
- *Program 10.3*: Encourage wetlands restoration where appropriate.

Policy 11: Bayland Overlay Zone. Establish a Bayland Overlay Zone to preserve and enhance natural and historic resources, including wildlife and aquatic habitats, tidal marshes, seasonal marshes, lagoons, wetlands, agricultural lands and low-lying grasslands overlaying historic marshlands. The Bayland Overlay Zone will be established as part of the adoption of the General Plan and all policies related to this zone (EN Policies 11-17) are effective with Plan adoption.

- *Program 11.1*: Revise the Zoning Ordinance to include a Bayland Overlay Zone consisting of bayland areas as shown on EN Map 2, excluding land that has been filled or legally developed. Permit uses in accordance with the underlying General Plan designation and Zoning District that are consistent with the other specific regulations pertaining to the Overlay Zone, recognizing the range of values which may characterize different areas.

Policy 12: Bayland Area Protection. Regulate development in the Bayland Overlay Zone so that it does not encroach into wetlands or sensitive wildlife habitats, provided that this

regulation does not prevent all use of a property. Discourage human activity that damages fisheries, or habitat for birds, fish or other wildlife.

- *Program 12.1*: All new development within the Bayland Overlay Zone shall provide a buffer between wetlands and the development. The buffer shall be of sufficient width to protect wetland habitat values. The buffer will be commensurate with the habitat value and it will be established as part of a site-specific decision.
- *Program 12.2*: Encourage protection of migratory and other birds, anadromous fish and endangered species.

Policy 14: Tidal Areas. Cooperate with State and Federal agencies to ensure that areas subject to tidal action remain in their natural state.

Policy 18: Species Diversity and Habitat. Protect biological resources that are necessary to maintain a diversity of plant and animal species.

- *Program 18.1*: Develop standards and mitigations to help ensure protection of native plant and animal species and their habitat, including the preservation and enhancement of wildlife corridors and edge habitats.

Policy 19: Special Status Species. Cooperate with State and Federal Agencies to ensure that development does not substantially adversely affect special status species appearing on the State or Federal list for any rare, endangered, or threatened species. The environmental documentation will screen for the Federal Candidate Species, plants listed on lists 1A, 1B, or 2 of the California Native Plant Society (CNPS), inventory of rare and endangered vascular plants of California and animals designated by CDFG as species of special concern or their current equivalent.

Policy 23: Native Woodlands. Maintain age and species diversity of native woodlands, and preserve the health of trees and other vegetation wherever feasible.

- *Program 23.1*: Require replacement of native trees/woodland with native species when projects result in the loss of woodland habitat.

Policy 24: Trees on Public Land. Protect native woodlands and significant trees on public lands by planting additional trees needed to maintain age and species diversity, ensuring the proper and timely pruning of trees, and removing non-native species, particularly if they are invasive.

- *Program 24.1:* Consider adopting a Tree Management Program, establishing varieties, size and spacing requirements, maintenance standards, and priority planting schedules.

Policy 25: Trees on Private Property. Encourage and, where appropriate, require actions by private property owners to protect the health of native woodlands and trees.

- *Program 25.1*: Continue requiring the planting of trees in parking lots to provide shade and visual screening.
- *Program 25.2*: Develop educational programs to inform property owners of good tree management practices.
- *Program 25.3*: Adopt a tree preservation ordinance that incorporates the City's Heritage Tree Ordinance.

Policy 26 Trees in New Development. Require that the site planning, construction and maintenance of development preserve existing healthy trees and native vegetation on site to the maximum extent feasible. Replace trees and vegetation not able to be saved.

- *Program 26.1*: Consider amending the City's Zoning Ordinance and other regulations to improve policies for tree and native vegetation preservation, planting, maintenance, and replacement.

City of Novato Municipal Code

Tree Ordinance. The City of Novato promotes the conservation of native trees on private lands and during development. Chapter 19 Section 19.39 applies to proposed development and new land uses on properties with native tree, forest or woodland resources. Land use application permits must include a tree inventory site plan showing the locations and types of all existing trees greater than three inches in diameter, and noting which trees are proposed to be removed. Where tree removal cannot be avoided by design measures, a minimum of 75 percent of existing native trees shall be retained. Trees adjacent to riparian corridors, wetlands or seasonal wetlands shall be protected and preserved with buffer zones in compliance with Section 19.35 Waterway and Riparian Protection and Section 19.36 Wetland Protection and Restoration. Mitigation will occur at a ratio of not less than 3:1, from local genetic stock. Onsite mitigation is preferable, and any off-site mitigation must occur within the Novato Watershed.

Chapter 17, Section 17-1.1 protects heritage trees within the city. The City of Novato defines a heritage tree as any woody plant characterized by having a major trunk or trunks of a diameter of 24 inches (circumference of 75 inches) or more measured at 24 inches above existing grade. The alternation or removal of a heritage tree within the city requires a permit.

Marin County General Plan

Marin County's applicable General Plan protective measures are described under the LGVSD area, above.

Marin County Code

Marin County's applicable County Code protective measures are described under the LGVSD area, above.

Napa SD

City of Napa General Plan

GOAL NR-1: To manage the natural resources, wetlands and open space areas in and around the city to preserve and enhance plant and wildlife habitats.

Policy NR-1.1: The City shall protect riparian habitat along the Napa River and its tributaries from incompatible urban uses and activities.

Policy NR-1.2: The City shall identify existing wildlife habitat corridors and seek to protect them from being severed or significantly obstructed.

Policy NR-1.3: The City shall encourage the planting of native plant species in natural habitats.

Policy NR-1.4: The City shall review all future waterway improvement projects (e.g., flood control, dredging, private development), as well as all projects that are within 100 feet of the waterway, to ensure that they protect and minimize effects on the riparian and aquatic habitats. The City shall also encourage native plantings along the river and creek banks to stabilize the banks, reduce sedimentation, reduce stormwater runoff volumes, and enhance aquatic habitats.

Policy NR-1.5: The City shall pursue federal and state funding to restore and enhance wetland, riparian, and fish habitats.

Policy NR-1.6: The City shall require as a condition of approval that development provide protection for significant on-site natural habitat whenever possible.

Policy NR-1.7: During development review, the City shall endeavor to identify and protect significant species and groves or clusters of trees on project sites.

Policy NR-1.8: The City shall provide controlled access points in designated areas to prevent unrestricted public access to riparian habitat on public lands.

Policy NR-1.11: The City shall continue to enforce the Fire Prevention Abatement program to protect riparian habitat from destruction by fire.

Policy NR-1.13: The City shall require that the composting and recycling of landscape maintenance debris be located so as to avoid adverse impacts on wetland, riparian, and fish habitat.

Implementation Programs

Policy NR-1.A: The City shall review and modify as necessary existing regulations for the conservation and management of marsh, wetland, riparian, wildlife and plant habitats to ensure consistency with the General Plan.

Policy NR-1.B: The City shall continue to rezone properties in marsh, wetland, oak woodland and riparian habitats to be subject to the provisions of the Conservation and Safety Regulations of the City's Zoning Ordinance.

Policy NR-1.C: The City shall develop guidelines and regulations to encourage new development to protect and enhance on-site habitat and incorporate it into the project. The City will allow the creation of off-site habitat on public or private land as an alternative if it is demonstrated to be infeasible to incorporate significant habitat protection into plans.

Policy NR-1.E: The City shall continue to require implementation of sensitive construction practices that minimize erosion and sedimentation, protect native and other important trees, restrict riparian encroachment, and maintain unobstructed drainageways.

GOAL NR-2: To recognize and support the preservation of rare, endangered and threatened species and of other unique and fragile biological environments.

Policy NR-2.1: The City shall maintain information about the location of endangered, threatened, and rare species.

Policy NR-2.2: The City shall encourage the County to preserve unique and fragile biological environments on unincorporated lands outside the Rural Urban Limit.

Policy NR-2.3: The City shall continue to refer development proposals in sensitive areas to state and federal wildlife agencies for review and comment.

Policy NR-2.4: When acting as a project proponent or when reviewing proposals for private projects requiring discretionary review by the City, the City shall ensure that its environmental review documents identify any feasible means of avoiding any net loss of habitat or of habitat value for endangered, threatened, and rare species. Where necessary or desirable, such avoidance can be achieved through off-site mitigation measures. As part of the environmental review, the City shall determine whether the Department of Fish and Game, in implementing the California Endangered Species Act, and/or the United States Fish and Wildlife Service, in implementing the Federal Endangered Species Act, will likely require mitigation sufficient to avoid any net loss of habitat or of habitat value for such species. Where these agencies are likely to require such a level of mitigation, the City may formulate its own mitigation measures so as to minimize the extent to which those measures duplicate the efforts of these agencies.

Implementation Programs

Policy NR-2.A: The City shall update its CEQA Initial Study Form to include specific questions that trigger review of the potential for impact on endangered species for sensitive habitat known to exist in the City of Napa.

Policy NR-2.B: The City shall prepare and maintain a set of resource maps identifying known locations of rare and endangered species and sensitive habitats for staff use as a reference during the Initial Study review of individual projects.

GOAL NR-4: To protect and enhance surface water and ground water quality.

Policy NR-4.7: Encourage design of projects to avoid covering creeks and drainageways whenever possible.

City of Napa Municipal Code

Tree Ordinance. The City of Napa Municipal Code Title 12 Chapter 12.45 protects significant trees and native trees within city limits. The following native trees are protected: valley oak, coast live oak, black oak, California bay and black walnut with a DBH of 12 inches or greater; blue oak with a DBH of 6 inches or greater; and coast redwood with a DBH of 36 inches or greater. Tree pruning and removal requires a valid permit. Mitigation for removal of significant and protected trees may consist of one of the following within 60 days of removal: (1) tree replacement on-site at a minimum 2:1 ratio and 15-gallon box size, per each six inches or fraction thereof of impacted native tree; (2) tree replacement on public property if the development site is inadequate in size to

accommodate the replacement trees (minimum 2:1 ratio and 15-gallon box size); or (3) an in-lieu payment of a sufficient amount per 15-gallon replacement tree on condition that all such payments shall be used for tree-related educational projects and/or planting programs of the city.

Napa County General Plan

The Napa County Code sets forth environmental protections for riparian zones (Title 16, Chapter 16.04). A riparian zone is defined as an area extending laterally outward fifty feet beyond the top of banks on either side of a watercourse channel, except that the riparian zone of the Napa River from the southern boundary of the county to Zinfandel Lane shall include an area extending laterally outward one hundred feet beyond the top of the banks on either side of its channel. Activities within riparian zones are regulated by permit for the purpose of preserving fish and game habitats, preventing or reducing erosion, maintaining cool water temperature, preventing or reducing siltation, and promoting wise use and conservation of county woodland and wildlife resources. The following regulations shall apply to all proposed activities within any riparian zone:

A. The proposed activity will not, with regard to the riparian zones along a channel, remove more than the following:

    1. A native tree eighteen inches DBH per one hundred feet of zone on each side of the floodplain, or
    2. Three native trees twelve inches DBH per one hundred feet of zone on each side of the floodplain, or
    3. Six native trees six inches DBH per one hundred feet of zone on each side of the floodplain, or
    4. Five hundred square feet of riparian cover beyond ten feet from top of the bank;
    5. The temporary removal of a strip of riparian cover not more than fifteen feet wide beyond ten feet from the top of the bank, where replanting of such a strip is a part of the project;

B. Will not involve the locating of any facility or structure within ten feet from the top of the bank;

C. Will not result in a cut or fill slope that would remain unprotected by slope reseeding and bank stabilization replanting at the end of the project.

APPENDIX 3.6
Land Use and Agriculture

Other Jurisdictions, General Land Use Plans

General plans are long-range policy documents to guide the use and future development of private and public lands within the boundaries of a city or county. General plans represent a jurisdiction's official position on issues such as development and resource management. California planning law (Government Code Sections 65302–65303) requires that each city or county in the state develop and adopt a general plan that addresses the following subjects: land use, circulation, housing, conservation, open space, safety, and noise. In essence, general plans represent the visions of local governments for their communities' future, and provide the policy framework intended to realize those visions.

Figure 3.6-1 shows the counties, unincorporated areas, and local city jurisdictions in which Project facilities would be constructed or upgraded. The following factors affect the application of these communities' general plans to the Project:

- *Local Agency Project Approval*. No local agency approvals would be needed for adoption of the programmatic portions of the Project. Proposed Project Specific and future individual projects could, in select cases, require encroachment permits from local agencies. Current and future project-level CEQA review of the program level projects will provide more detailed and up-to-date information on the approvals required for each project.

- *Building and Zoning Ordinances*. Building and zoning ordinances represent the most specific expressions of general plan goals, objectives, and policies. State law and judicial interpretation of state law mutually exempt public utilities and special-purpose local agencies (such as water districts) from complying with local building and zoning ordinances when locating or constructing facilities for the production, generation, storage, treatment, or transmission of water and wastewater (California Government Code Section 53090 et seq). The North Bay Water Reuse Authority (NBWRA) is comprised of several wastewater utility districts, and is therefore exempt from complying with the building and zoning ordinances of other cities and counties.

- *Local Government Notification and Consistency Determination Requirements*. California Government Code Section 65402(c) requires that the Authority and its member agencies inform cities and counties of its plans to construct projects or acquire or dispose of property. The planning agencies of the affected local cities and counties have 40 days to determine project consistency with their general plans; these consistency determinations are advisory to the Authority rather than binding. Approval of the Programmatic portions of the project would not trigger the requirements of Section 65402(c), however, future implementation of individual project level components would. The Authority and its

> member agencies would notify local governments of Project facilities to be constructed or upgraded within the city or county as part of any project-level environmental review process. Prior to project implementation, local governments would be notified pursuant to California Government Code Section 65402(c). If the planning agency disapproves the location, purpose or extent of such acquisition, disposition, or the public building or structure, the disapproval may be overruled by the Authority and its member agencies.

Notwithstanding the above, where planed Project facilities are sited outside of lands owned by the Authority and its member agencies, the Authority seeks to work cooperatively with affected local jurisdictions to avoid conflicts with local land use plans and building and zoning codes. For the purposed of the Project with respect to the discussion of land use, a key issue for local agencies that are affected by project construction and operation is whether or not the project adequately addresses community goals regarding water conservation and service for existing and future agricultural, urban, and environmental uses.

The intent of the general plans prepared by the affected cities and counties is to preserve and improve the quality of life for its citizens and to consider growth in a manner that appropriately reflects the community's values; an adequate, reliable water supply is a chief public service needed to accomplish these goals.

A second issue of importance to local agencies is whether implementation of the Project would be consistent with community goals regarding resource protection. As discussed in Chapter 2, the purpose of the proposed Project is to reduce the reliance on local and imported surface and groundwater and to reduce the discharge of treated wastewater to the San Pablo Bay. **Table 3.6-1** presents an overview of general plan policies and goals that address the protection of environmental resources or the mitigation of environmental impacts. All of the issues identified in the table are addressed in this EIS/EIR in one form or another; some specific policies are used as criteria to determine the significance of physical effects on the environment. **Table 3.6-2** lists the significance criteria that directly relate to consistency with plans and policies and indicates where in this chapter the reader can find the impact evaluation.

Throughout this EIS/EIR, local planning documents and relevant policies are discussed to provide additional information to the public, other agencies, and decision-makers, although these plans and policies may not be directly applicable to the NBWRA and the proposed Project and alternatives.

City and County General Land Use Plans

LGVSD and Novato Sanitation District Service Areas

Marin Countywide Plan

Marin County has long maintained a tradition of environmental planning balanced with the recognition of the essential linkages between land use, transportation, and the need for affordable housing (Marin Countywide Plan 2020). The Agricultural and Natural Systems Element and the Built Environment Element both address Land Use issues and establishes policies for guiding

TABLE 3.6-1
SUMMARY OF GENERAL PLAN POLICIES OF OTHER JURISDICTIONS BY CEQA RESOURCE TOPIC

Resource Topic	Summary Description
Land Use and Visual Quality	General plan goals, policies, and implementation actions related to land use generally call for the use of an environmental review process to minimize potential impacts of projects, and strive to minimize the impact of construction projects on surrounding land uses.
Geology, Soils, and Seismicity	General plan policies related to geology, soils, and seismicity call for appropriate placement, design, and construction of utilities to minimize damage from seismic and geologic hazards and for the implementation of extra precautionary measures to restore utility services following earthquakes. Effective mitigation measures are required for utilities in areas prone to geologic hazards such as soil erosion, liquefaction, and slope failure.
Hydrology and Water Quality	General plan policies related to hydrology and water quality generally deal with the utilization of erosion control measures and storm water quality controls, the protection of riparian zones, and the conservation of water resources in the natural environment. Dam maintenance and monitoring are prescribed in areas potentially subject to dam failure.
Biological Resources	General plan goals, policies, and implementation programs related to biological resources are aimed at the protection of sensitive wildlife habitat and plants, including wetlands, riparian zones, native hardwoods, open space, and sensitive habitats for rare and endangered fish and wildlife species. Heritage tree programs specify guidelines for the avoidance, protection, and, when necessary, replacement of heritage trees. Use of the CEQA/NEPA process to ensure that detrimental biological impacts do not occur is prescribed.
Cultural Resources	General plan policies related to cultural resources prescribe procedures to prevent detrimental impacts on archaeological/paleontological sites during construction, and the use of good planning practices to preserve cultural and historic heritage.
Traffic, Transportation, and Circulation	General plan policies related to traffic, transportation, and circulation generally require an impact analysis of new development proposals on traffic and encourage the use of utility corridors and river/ creek rights-of-way for nonmotorized transportation modes such as bicycle and pedestrian facilities.
Air Quality	General plan policies related to air quality call for air quality impact analyses for proposed projects and the use of air quality controls, such as dust abatement measures during construction, to reduce air quality impacts.
Noise and Vibration	General plan policies related to noise and vibration generally establish enforceable noise thresholds, require the use of noise suppression techniques during construction activities, encourage the incorporation of noise reduction techniques in new structures, and call for compliance with noise ordinances during facility operation.
Public Services and Utilities	General plan policies related to public services and utilities call for safeguarding utility lines from rupture or malfunction from natural or manmade hazards.
Recreational Resources	General plan policies related to recreational resources encourage the use of utility corridors and rights-of-way for recreational uses such as parks, pedestrian and bicycle trails, open space, and other recreational facilities and programs.
Agricultural Resources	General plan policies related to agricultural resources encourage utilities to route their facilities along property lines to prevent interference with agricultural operations.
Hazards	General plan policies related to hazards call for the proper handling, use, disposal, and transport of hazardous materials and the placement, design, construction, and protection of critical utilities from potential disasters.
Energy Resources	No relevant general plan policies related to energy resources were identified.

TABLE 3.6-2
SIGNIFICANCE CRITERIA RELATED TO CONSISTENCY WITH PLANS AND POLICIES BY ENVIRONMENTAL RESOURCE TOPIC

Resource Topic	Significance Criterion
Geology, Soils, and Seismicity (Section 4.4)	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.
Biological Resources (Section 4.6)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.
Traffic, Transportation, and Circulation (Section 4.8)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., conflict with policies promoting bus turnouts, bicycle racks, etc.), or cause a substantial increase in transit demand that cannot be accommodated by existing or proposed transit capacity or alternative travel modes).
Noise and Vibration (Section 4.10)	Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. For a project located within an area covered by an airport land use plan (or, where such a plan has not been adopted, within two miles of a public airport or public use airport), expose people residing or working in the project area to excessive noise levels.

land use and development in accordance with planned future growth, including the distribution, location, and extent of land uses and their associated standards of population density and building intensity with respect to water resources, agricultural resources and community development.

Water Resources

The Water Resources section of the Natural Systems Element contains Land Use goals and policies that are relevant to the proposed Project. Goals WR-1 and WR-2 reflect the Marin County Watershed Management Plan's recommendations and aim to preserve and enhance healthy watersheds and maintain adequate water supplies.

Agriculture

The primary objectives of the agriculture goals and policies identified within the Natural Systems and Agricultural Element are preserving agricultural lands and preventing subdivision of lands under agricultural production. The County's agricultural policies presented within the element recognize the value of continued agriculture for regional food and fiber and also as an industry for the diversified county economy. Goals AG-1 and AG-2 reflect the steps being taken to preserve agricultural lands and resources and improve the viability of agricultural resources through out the County:

Community Development

The Community Development Element establishes policies for land use designations and boundaries, growth, infrastructure, and services, and sets forth a town design program. Goal CD-4 discusses the need to coordinate Planning efforts between local districts, including special districts. Goal CD-5 and policies CD-5.d and e discuss effective growth management as related to

transportation, water, sewer, wastewater facilities, and other public services that are relevant to the proposed project.

City of San Rafael General Plan

The City of San Rafael General Plan 2020 provides a united vision of the future of the community with goals to preserve San Rafael's 'hometown' character, improve the appearance of the neighborhoods, sustain the diversity of the local economy, and treasure open spaces. The Land Use, Infrastructure and Open Space Elements contain objectives and policies that are relevant to the Proposed Project. Policy LU-1 of the Land Use Element emphasizes the planning of the circulation system and infrastructure to provide capacity for the total development expected by 2020. Policies I-9 and I-13 of the Infrastructure I-9 encourage the Marin Municipal Water District to develop cost effective strategies for adequate long-term water supplies and encourage additional water recycling at Las Gallinas Valley Sanitary District and the Central Marin Sanitation Agency to investigate recycling and reuse of its treated wastewater. Policy OS-6 discourage utilities in open space areas. Necessary utilities in open space should be located and designed to minimize harm to the area's environmental and visual quality while policy CON-20 encourages water-conserving practices in businesses, homes and institutions and increase the use of recycled water.

City of Novato General Plan

The 1996 Novato General Plan is a statement of the community's vision of the future. It is a long-range and comprehensive plan that coordinates all major components of the community's physical development for the next twenty years. The Land Use Element contains objectives, policies, and programs for land use designations, infrastructure and public services, constraints analysis, the City's Sphere of Influence, and inter-jurisdictional coordination. Early public comments in the General Plan Update process created a foundation of goals adopted by the City Council. The goals applicable to the proposed Project are as follows:

> **Goal 1:** Preserve and improve the quality of life in Novato. Conserve and where appropriate restore the natural environment and strive for high quality in the built environment that complements the natural environment.
>
> **Goal 5:** Preserve, protect and enhance the natural setting throughout the community, including creeks, hillsides, ridgelines, woodlands, wildlife, native plants, wetlands and open space.
>
> **Goal 6:** Preserve bay front lands and diked wetlands for agriculture, resource restoration, conservation and recreation.
>
> **Goal 11:** Manage growth by requiring the coordination of development with adequate infrastructure, public facilities, public services and promoting conservation, reuse and recycling strategies while meeting the needs of the community with the limited land available for development.

SVCSD

Sonoma County General Plan

The Sonoma County General Plan provides guidance for future growth, development and conservation of resources in a manner that is consistent with the goals and the quality of life described by County residents (Sonoma County 1998).

Land Use Element. The Land Use Element establishes policies for guiding land use and development in accordance with planned future growth, including the distribution, location, and extent of land uses and their associated standards of population density and building intensity. The Land Use Element provides goals and objectives that are relevant to the Proposed Project. Goals LU-1, LU-2, LU-8 focus on accommodating growth in Sonoma County with consideration of environmental constraints, capacities of public services and maintaining agricultural lands. The General Plan has objectives specific to the Sonoma Valley (Objectives LU-18.1, LU-18.2) that seek to monitor and limit development within the City of Sonoma.

Agricultural Resources Element. The Agricultural Resources Element establishes policies that protect the stability and productivity of agricultural lands and the agricultural industry in the County. This element provides goals and objectives that are related to the Proposed Project. Goals AR-1, AR-5, AR-8 seek to promote the agricultural industry and facilitate agricultural production. Goal AR-8 has objectives to support the Williamson Act program (Objective AR-8.1) as well as participate with wastewater generators to establish programs for agricultural reuse of treated wastewater (Objective AR-8.2, Policy AR-8f).

Resource Conservation Element. The Resource Conservation Element provides for the conservation of natural resources including water, forests, soils, rivers, harbors, fisheries, wildlife, minerals, and other natural resources. It supports the county's economic base by promoting the production and use of the county's resources. It guides land use decisions that will contribute to the long term maintenance of resource production. Goal RC-3 calls for the conservation, enhancement, and management water resources to assure an adequate long term supply of water for domestic, fishing, industrial and agricultural use.

City of Sonoma General Plan

The City of Sonoma General Plan provides a collective vision of the community and general guidance for growth and development in the City and its Sphere of Influence, including the preservation of balance between agriculture, open space, business considerations, visitor activities, environmental/recreational/historical/cultural resources, and residential needs (City of Sonoma, 2006).

Community Development Element. The Community Development Element establishes policies for land use designations and boundaries, growth, infrastructure, and services, and sets forth a town design program. Goals CDE-3 and CDE-6 discuss joint planning efforts with other public agencies in the Sonoma Valley and issues related wastewater treatment use in the Sonoma valley relevant to the Proposed Project.

Environmental Resources Element. The Environmental Resources Element establishes policies for open space, conservation, and recreation. Goals ER-1 through ER-4 discuss supporting community programs that preserve and promote agriculture, habitat areas and significant environmental resources including surface and ground water supplies and quality and to set an example of sustainability by conserving resources and following green practices in City facilities, services, and projects.

Napa Sanitation District Service Area

Napa County General Plan

The Napa County General Plan summarizes County Planning Goals and objectives; and establishes a balance between diverse, and in some cases, conflicting programs. It helps maintain the compatibility of economic and environmental objectives and provides guidance for the allocation of resources and the preservation of important County values. (Napa County GP) The County conducted a General Plan Update in 2007 which guides development through a 20 year period.

Agricultural Preservation and Land Use Element. The Agricultural Preservation and Land Use Element contains goals and policies related to agriculture and agricultural, watershed, and open space lands; urban-centered growth; residential, commercial, industrial, and public-institutional uses; growth management; and interagency cooperation. Goals AG/LU-1 and AG/LU-7 discuss the preservation of existing agricultural land uses and urge the consideration of environmental or climatic changes, and desired social services when siting public facilities and when considering the design of those facilities. Policy AG/LU-115 notes that the County will work cooperatively with the private and non-profit sectors, cities, special districts, and other local, state, and federal agencies to plan for services and public facilities.

Conservation Element. The Conservation Element contains goals and policies related to open space conservation, natural resources, surface and ground water supplies, water quality, climate protection, and sustainable practices for environmental health. Collectively, the goals, policies, and action items of this element ensure that Napa County's abundant natural areas and extraordinarily high biodiversity will be preserved and enhanced, that the County's air, water, and terrestrial habitats will be protected, and that Napa County will do its part to conserve energy and address local contributions to global climate change. Goal CON-10 promotes the responsible use and conservation of water in order to conserve supplies and ensure an adequate supply of water for future generations. Goal CON-13 promotes the development of additional water resources to improve water supply reliability in Napa County, including imported water supplies and recycled water projects. Policy CON-62 notes that the county will support recycled water for irrigation and non-potable uses to offset dependency on groundwater and surface waters and ensure adequate wastewater treatment capacity.

City of Napa General Plan

The City of Napa 2020 General Plan sets the framework for future growth and development within which Napa can expand while still maintaining the community character and quality of life that are so important to Napa residents. The General Plan emphasizes the need for neighborhood

conservation, containing growth within the rural urban limit, revitalizing the downtown area and maintaining a sustainable economy (City of Napa, 2006). The Land Use and Natural Resource Elements are relevant to the Proposed Project. Goals LU-2 and LU-3 focus on maintaining the Rural Limit (RUL), an urban growth boundary, to support Napa County's agricultural and other resource uses. Goal NR-1 strives to preserve the natural resources, wetlands and open space areas in and around the City of Napa. Goal CS-9.5 discusses the feasibility and use of reclaimed wastewater in appropriate locations to offset the demand for potable water supplies. Goal CS-10.2 supports the continued efforts by the Napa Sanitation District to promote the use of reclaimed wastewater.

Habitat Conservation Plans

The North Bay initiative plans to develop a wetlands resource management plan for the lower portions of the Napa River, Sonoma Creek, and Petaluma River watershed. This area, known as the San Pablo Bay, encompasses more than 50,000 acres of former baylands and marshes, most of which are now agricultural. Bowker has helped to insure that farmers and other landowners are incorporated fully into resource planning efforts by hosting a series of workshops with local government officials and the general public. This initiative has the potential to increase the overall wetlands resource base in California by more than 10 percent.

Regional planning efforts, such as the North Bay Initiative (North Bay Wetlands Protection Program [NBWPP]) and the U.S. Fish and Wildlife Service's (USFWS) Habitat Goals Process are currently being developed. Funded by grants through the EPA, the NBWPP is a voluntary partnership between the BCDC and local governments to develop a comprehensive wetlands protection plan for the North Bay. The goal of the program is to ensure the protection, enhancement, and restoration of North Bay wetlands, while allowing uses such as agriculture that are consistent with wetland values and functions to continue, and limiting other incompatible uses to upland locations. The Bay faces development pressures and land use changes that could seriously compromise the vast mosaic of wetlands, diked historic baylands, and agricultural lands. Urbanization may eliminate some of the best and last remaining opportunities to increase the abundance and diversity of wildlife through the restoration of diked historic baylands. Population growth, new development, and related infrastructure improvements within the Bay watershed may result in the direct loss of wetlands, riparian habitat, and agricultural lands. The planning efforts of the NBWPP focus on reducing conflict, uncertainty, and delays in the wetlands regulatory process by integrating habitat-based natural resource planning, wetland studies, wetland restoration planning (such as the Habitat Goals Process), and state and federal regulatory requirements with local land use planning and zoning.

The NBWPP will provide participating local governments with technical assistance, resource mapping, and baseline information needed to identify and develop comprehensive wetland protection programs.

APPENDIX 3.7
Traffic

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to traffic and transportation and the proposed project.

LGVSD

City of Novato

The City of Novato General Plan Transportation Element promotes alternative modes of transportation, roadway improvements, and traffic improvements throughout the planning area (City of Novato, 2003). As the General Plan focuses on the design and implementation of circulation system improvements, policies in this element do not directly relate to the proposed project.

Chapter XV (15-2) of the City of Novato Municipal Code details the City's regulations regarding the use of roads and the construction of utilities infrastructure, including encroachments. Numerous regulations are applicable to the proposed project, including regulations regarding the use of roadways, the type of vehicles and load sizes allowable on given roadways, encroachment on private property, and the construction of utilities infrastructure (City of Novato, 2008). The municipal code applies to all roads within the City's jurisdiction, and project construction must adhere to all ministerial regulations presented in the Municipal Code.

Unincorporated Marin County

Some of the roads in the project area are under the jurisdiction of Marin County. County policies and regulations regarding the design, use, or obstruction of roadways are detailed in the *Marin County Countywide Plan* The Built Environment (Transportation) Element (Marin County, 2007). The majority of these goals and policy guidelines in The Built Environment (Transportation) Element pertain to the development and planning of roadways and transit systems and therefore are not relevant to the proposed project.

Novato SD

City of Novato

See discussion under LGVSD Service Area, above.

Unincorporated Marin County

See discussion under LGVSD Service Area, above.

SVCSD

City of Sonoma

The City of Sonoma General Plan Circulation Element promotes alternative modes of transportation, roadway improvements, and traffic improvements throughout the planning area (City of Sonoma, 2006). As the General Plan focuses on the design and implementation of circulation system improvements, policies in this element do not directly relate to the proposed project.

Chapter 12.20 of the City of Sonoma Municipal Code details the City's regulations regarding the use of roads and the construction of utilities infrastructure, including encroachments. Numerous regulations are applicable to the proposed project, including regulations regarding the use of roadways, the type of vehicles and load sizes allowable on given roadways, encroachment on private property, and the construction of utilities infrastructure (City of Sonoma, 2008). The municipal code applies to all roads within the City's jurisdiction, and project construction must adhere to all ministerial regulations presented in the Municipal Code.

Unincorporated Sonoma County

Several of the roads in the project corridor are under the jurisdiction of Sonoma County. County policies and regulations regarding the design, use, or obstruction of roadways are detailed in the Sonoma County General Plan Circulation and Transit Element (Sonoma County, 2008). The majority of these goals and policy guidelines in the Circulation and Transit Element pertain to the development and planning of roadways and transit systems and therefore are not relevant to the proposed project.

The *Draft 2009 Countywide Transportation Plan* for Sonoma County provides further guidance for transportation planning and associated goals and policies (SCTA, 2008b). This plan focuses on the design and implementation of improvements to the county circulation system, including roadways, bikeways, and rail service. Therefore, the plan does not include policies relevant to the proposed project.

Napa SD

City of Napa

Portions of the roads in the project corridor are under the jurisdiction of City of Napa. The City of Napa General Plan Circulation Element promotes alternative modes of transportation, roadway improvements, and traffic improvements throughout the planning area (City of Napa, 2007). As the General Plan focuses on the design and implementation of circulation system improvements, policies in this element do not directly relate to the proposed project.

Chapter 12.12 of the City of Napa Municipal Code details the City's regulations regarding the use of roads and the construction of utilities infrastructure, including encroachments. Numerous

regulations are applicable to the proposed project, including regulations regarding the use of roadways, the type of vehicles and load sizes allowable on given roadways, encroachment on private property, and the construction of utilities infrastructure (City of Napa, 2008). The municipal code applies to all roads within the City's jurisdiction, and project construction must adhere to all ministerial regulations presented in the Municipal Code.

Unincorporated Napa County

Most of the roads in the project corridor are under the jurisdiction of Napa County. County policies and regulations regarding the design, use, or obstruction of roadways are detailed in the Napa County General Plan Circulation Element (Napa County, 2008). The majority of these goals and policy guidelines in the Circulation Element pertain to the development and planning of roadways and transit systems and therefore are not relevant to the proposed project.

URBEMIS Construction Assumptions – No Action Alternative

Due to the lack of data on exact construction phasing of the No Action Alternative, a number of assumptions were made to determine worst case annual construction emission associated with construction. These assumptions are outlined below.

Construction of Pipelines

To estimate worst case emission from pipeline construction throughout the project area, it was assumed that each sanitary district would construct pipeline projects concurrently. It was assumed that construction of each pipeline would progress at a rate of 250 feet per day and that work would be completed in 'spreads'. The first spread of equipment would demolish the existing roadway and remove the excavated material. The second spread would excavate the trench required to install the proposed pipeline. The third spread would install the proposed pipeline and the final spread would backfill the trench and re-pave the disturbed portion of the road. It was assumed that work would be completed along a line so each spread would be used each day at different locations along the pipeline. Equipment estimates for each spread are demonstrated in **Table 1** below. It was assumed that each piece of equipment would operate 8 hours per day which represents a conservative analysis.

It is important to note that the equipment counts demonstrated in Table 1 represent the set of equipment used to construct one pipeline. Therefore the total pieces of equipment being utilized in the district the on the worst-case day would be three times the amount of equipment presented in Table 1 (assuming that no new pipeline would be constructed in connection with the LGVSD under the No Action Alternative).

To estimate the amount of material to be exported during demolition of the roadway it was assumed that the asphalt is 1 foot thick. Assuming that a 5 foot wide strip of asphalt is removed, a total of 1250 cubic feet of material would be removed per day (250 feet long x 5 feet wide x 1 foot deep = 1250 cubic feet).

TABLE 1
CONSTRUCTION EQUIPMENT ESTIMATES

Equipment	Demolish Roadway	Excavate Trench	Install Pipe	Re-pave Roadway
Air Compressors			1	
Concrete/Industrial Saw	2			
Cranes			1	
Excavators		1		
Forklifts			2	
Graders		1		
Pavers				1
Paving Equipment				2
Plate Compactors				1
Rollers				2
Rubber Tired Dozers		1		
Tractors/Loaders/Backhoes	2	2	1	1
Water Trucks		1		
Welders			3	
Haul Trucks	1	28		

To estimate the amount of dirt handled during trench excavation it was assumed that the trench would be 6 feet deep by 5 feet wide resulting approximately 7500 cubic feet or roughly 280 cubic yards of excavation each day. It was assumed that all excavated material would be exported and that new soil would be imported to fill the trench. It was assumed that 270 cubic yards of fill would be needed for each 250 foot segment since the pipe will take up a small volume of the trench.

The number of construction work days for the worst case year was determined by dividing the proposed pipe length associated with each WWTP by the estimated number of feet to be completed per day (250 feet). Therefore it was assumed that Novato SD pipeline construction would take approximately 92 days, SVCSD pipeline construction would take approximately 131 days and Napa SD construction would take approximately 74 days.

Construction of New Storage Facilities

It was assumed that excavation of new storage ponds would occur at a rate of approximately 550 cubic yards of material exported per day. Therefore, the excavation of the new 1.5 acre-foot storage facility in the Novato SD would take approximately 5 days each assuming that approximately 2,000 cubic yards of soil is excavated to create a 1.5 acre-foot storage pond. The storage ponds at SVCSD would provide 65 acre-feet of new storage, and would require removal of approximately 100,000 cubic yards of material. At a rate of 550 cubic yards per day this would take approximately 181 work days.

The construction equipment mix assumed to be used for excavation of the proposed storage ponds includes the following: two (2) rubber tired dozers, two (2) tractors/loaders/backhoes, one (1) grader, and one (1) water truck. It was assumed that all equipment would run 8 hours a day which represents a conservative analysis.

Upgrades to Existing WWTPs

To evaluate emissions associated with upgrades to existing WWTPs it was assumed that each site would be graded and prepared over approximately 1 month. It was assumed that equipment used would include the following: one (1) grader, one (1) rubber tired dozer, one (1) tractor/loader/ backhoe, and one (1) water truck. To be conservative, it was assumed that all equipment would operate for 8 hours per day. It was assumed that no modifications would be made to the LGVSD WWTP under the No Action Alternative.

APPENDIX 3.8
Air Quality

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to air quality and the proposed project.

LGVSD

City of San Rafael General Plan

The Air and Water Quality Elements of the City of San Rafael 2020 General Plan include policies to help San Rafael meet all ambient air quality standards. Policies that may be applicable to the proposed action include the following (City of San Rafael, 2004):

> *Policy AW-2. Land Use Compatibility*: To ensure excellent air quality, promote land use compatibility for new development by using buffering techniques such as landscaping, setbacks, and screening in areas where different land uses abut one another.
>
> *Policy AW-2b. Buffers*: Through development review, ensure that any new sources of toxic air contaminants or odors provide adequate buffers to protect sensitive receptors and comply with existing health standards.
>
> *Policy AW-4. Particulate Matter Pollution Reduction*: Promote reduction of particulate matter from roads, parking lots, construction sites, agricultural lands and other activities.
>
> *Policy AQ-4a. Pollution Reduction*: Through development review, ensure that any proposed new sources of particulate matter use latest control technology (such as enclosures, paving unpaved areas, parking lot sweeping and landscaping) and provide adequate buffer setbacks to protect existing or future sensitive receptors.

Marin Countywide Plan

Policies regarding air quality are contained within the Natural Systems and Agricultural Element of the Marin Countywide Plan. Policies and implementation programs that may be applicable to the proposed action include the following (Marin County, 2007):

> *Policy AIR-1.3. Require Mitigation of Air Quality Impacts*: Require projects that generate potentially significant levels of air pollutants, such as quarry, landfill operations, or large construction projects, to incorporate best available air quality mitigation in the project design.

Policy AIR-2.1. Buffer Emission Sources and Sensitive Land Uses: Consider potential air pollution and odor impacts from land uses that may emit pollution and/or odors when locating (a) air pollution sources, and (b) residential and other pollution-sensitive land uses in the vicinity of air pollution sources (which may include freeways, manufacturing, extraction, hazardous material storage, landfill, food processing, wastewater treatment, and other similar uses).

Implementation program AIR-4h. Evaluate the Carbon Emissions Impacts of Proposed Developments: Incorporate a carbon emissions assessment into land use plans and the environmental impact report for proposed projects.

Novato SD

City of Novato General Plan

The Environment Chapter of the City of Novato General Plan includes policies to regulate emissions of air pollutants. Programs included in the City of Novato General Plan that may be applicable to the proposed action include the following (City of Novato, 1996):

EN Program 32.1: Use the environmental review process to determine whether air emissions from proposed development would exceed BAAQMD standards.

EN Program 34.1: Use the City's development review process and CEQA regulations to evaluate and mitigate the local and cumulative effects of new development on air quality.

EN Program 34.3: Continue to require and enforce a dust emissions control plan for construction.

EN Program 34.4: Review all new industrial development for potential air quality impacts on sensitive receptors. Require adequate buffer zones between industrial development and sensitive receptors to ensure public health and to prevent odor-based nuisance.

Marin Countywide Plan

See discussion under LGVSD service area.

SVCSD

City of Sonoma General Plan

The Environmental Resources Element of the City of Sonoma's 2020 General Plan includes the following policy and implementation measure that may be applicable to the proposed action (City of Sonoma, 2006):

Policy 2.0: Require development to avoid potential impacts to wildlife habitat, air quality, and other significant biological resources, or to adequately mitigate such impacts if avoidance is not feasible.

Implementation Measure 2.9.1: Evaluate applications for new developments in terms of their potential to expose sensitive uses to substantial air pollutant concentrations and/or to create or emit objectionable odors.

Sonoma County General Plan

The Sonoma County General Plan's Resource Conservation Element includes goals and policies regarding the protection and enhancement of air quality in the region. The county's goal in maintaining air quality is to "Preserve and maintain good air quality and provide for an air quality standard that will protect human health and preclude crop, plant, and property damage in accordance with the requirement of the federal and state Clean Air Acts" (Sonoma County, 1998). The General Plan Resource Conservation Element contains the following objective that would generally be applicable to the proposed action:

> *Objective RC-13.1*: Maintain the projected county air quality as set forth in the Final Environmental Impact Report [for the General Plan EIR] and minimize air pollution.

Napa SD

City of Napa General Plan

The City of Napa General Plan's Natural Resources chapter contains a number of policies to help maintain acceptable levels of air quality in the City of Napa. The following policy may be applicable to the proposed action (City of Napa, 2007):

> *Policy NR-5.4*: The City shall, during discretionary review, require that development proposals comply with federal and state air quality standards, or make findings that the project has overriding benefits to the community that outweigh nonattainment of the standards.

Napa County

The Conservation and Open Space Element of the Napa County General Plan contains plans and policies to protect and enhance air quality in the County. The policies outlined in this document focus primarily on discouraging scattered development and preventing the filling of river areas, salt ponds, wetlands and marsh areas (Napa County, 1998).

APPENDIX 3.8A

Construction Assumption

URBEMIS Construction Assumptions – No Action Alternative

Due to the lack of data on exact construction phasing of the No Action Alternative, a number of assumptions were made to determine worst case annual construction emission associated with construction. These assumptions are outlined below.

Construction of Pipelines

To estimate worst case emission from pipeline construction throughout the project area, it was assumed that each sanitary district would construct pipeline projects concurrently. It was assumed that construction of each pipeline would progress at a rate of 250 feet per day and that work would be completed in 'spreads'. The first spread of equipment would demolish the existing roadway and remove the excavated material. The second spread would excavate the trench required to install the proposed pipeline. The third spread would install the proposed pipeline and the final spread would backfill the trench and re-pave the disturbed portion of the road. It was assumed that work would be completed along a line so each spread would be used each day at different locations along the pipeline. Equipment estimates for each spread are demonstrated in Table 1 below. It was assumed that each piece of equipment would operate 8 hours per day which represents a conservative analysis.

TABLE 1
CONSTRUCTION EQUIPMENT ESTIMATES

Equipment	Demolish Roadway	Excavate Trench	Install Pipe	Re-pave Roadway
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Cranes			1	
Excavators		1		
Forklifts			2	
Graders		1		
Pavers				1
Paving Equipment				2
Plate Compactors				1
Rollers				2
Rubber Tired Dozers		1		
Tractors/Loaders/Backhoes	2	2	1	1
Water Trucks		1		
Welders			3	
Haul Trucks	1	28		

It is important to note that the equipment counts demonstrated in Table 1 represent the set of equipment used to construct one pipeline. Therefore the total pieces of equipment being utilized in the district the on the worst-case day would be three times the amount of equipment presented in Table 1 (assuming that no new pipeline would be constructed in connection with the LGVSD under the No Action Alternative).

To estimate the amount of material to be exported during demolition of the roadway it was assumed that the asphalt is 1 foot thick. Assuming that a 5 foot wide strip of asphalt is removed, a total of 1250 cubic feet of material would be removed per day (250 feet long x 5 feet wide x 1 foot deep = 1250 cubic feet).

To estimate the amount of dirt handled during trench excavation it was assumed that the trench would be 6 feet deep by 5 feet wide resulting approximately 7500 cubic feet or roughly 280 cubic yards of excavation each day. It was assumed that all excavated material would be exported and that new soil would be imported to fill the trench. It was assumed that 270 cubic yards of fill would be needed for each 250 foot segment since the pipe will take up a small volume of the trench.

The number of construction work days for the worst case year was determined by dividing the proposed pipe length associated with each WWTP by the estimated number of feet to be completed per day (250 feet). Therefore it was assumed that Novato SD pipeline construction would take approximately 92 days, SVCSD pipeline construction would take approximately 131 days and Napa SD construction would take approximately 74 days.

Construction of New Storage Facilities

It was assumed that excavation of new storage ponds would occur at a rate of approximately 550 cubic yards of material exported per day. Therefore, the excavation of the new 1.5 acre-foot storage facility in the Novato SD would take approximately 5 days each assuming that approximately 2,000 cubic yards of soil is excavated to create a 1.5 acre-foot storage pond. The storage ponds at SVCSD would provide 65 acre-feet of new storage, and would require removal of approximately 100,000 cubic yards of material. At a rate of 550 cubic yards per day this would take approximately 181 work days.

The construction equipment mix assumed to be used for excavation of the proposed storage ponds includes the following: two (2) rubber tired dozers, two (2) tractors/loaders/backhoes, one (1) grader, and one (1) water truck. It was assumed that all equipment would run 8 hours a day which represents a conservative analysis.

Upgrades to Existing WWTPs

To evaluate emissions associated with upgrades to existing WWTPs it was assumed that each site would be graded and prepared over approximately 1 month. It was assumed that equipment used would include the following: one (1) grader, one (1) rubber tired dozer, one (1) tractor/loader/backhoe, and one (1) water truck. To be conservative, it was assumed that all equipment would operate for 8 hours per day. It was assumed that no modifications would be made to the LGVSD WWTP under the No Action Alternative.

URBEMIS Construction Assumptions – Phase 1

Assumptions used to estimate construction emissions from Phase 1 were similar to those used to evaluate emissions from construction of the No Action Alternative. However, for Phase 1 it was assumed that construction of facilities in the LGVSD would require an additional spread (resulting in four spreads working concurrently during the worst case year).

Additionally, since a greater number of new facilities would be constructed under Phase 1, it was assumed that during the worst case year pipeline construction in SVCSD and Napa would take place throughout the entire year. For LGVSD and Novato, pipeline construction would take place for approximately six months and ten months respectively during the worst case year. The analysis presented in the Air Quality Section assumes that all of these activities would occur concurrently in the same year, a worst case scenario.

URBEMIS - NO ACTION CONSTRUCTION EMISSIONS

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\206xxx\D206088.00 - North San Pablo Bay\0 D206088.01 Phase II\04 Work Products\04.1 Working Documents\EIR-EIS\Air Quality\URBEMIS\Phase1NovatoSD.urb924

Project Name: North San Pablo Recycled Water

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	0.83	6.09	3.68	0.00	3.58	0.38	3.96	0.75	0.35	1.10	613.66

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	0.83	6.09	3.68	0.00	3.58	0.38	3.96	0.75	0.35	1.10	613.66
Asphalt 01/01/2009-05/08/2009	0.21	1.22	0.75	0.00	0.00	0.10	0.11	0.00	0.10	0.10	97.87
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.20	1.20	0.65	0.00	0.00	0.10	0.10	0.00	0.10	0.10	87.88
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
Paving Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.20

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Building 01/01/2009-05/08/2009	0.20	1.21	1.02	0.00	0.00	0.08	0.08	0.00	0.07	0.07	151.80
Building Off Road Diesel	0.17	0.94	0.54	0.00	0.00	0.07	0.07	0.00	0.06	0.06	84.98
Building Vendor Trips	0.02	0.24	0.16	0.00	0.00	0.01	0.01	0.00	0.01	0.01	41.11
Building Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.72
Demolition 01/01/2009-05/08/2009	0.07	0.42	0.30	0.00	0.02	0.04	0.06	0.01	0.03	0.04	42.94
Fugitive Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.06	0.39	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	35.04
Demo On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.22
Demo Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.69
Fine Grading 01/01/2009-01/07/2009	0.02	0.17	0.09	0.00	0.18	0.01	0.19	0.04	0.01	0.05	16.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.18	0.00	0.18	0.04	0.00	0.04	0.00
Fine Grading Off Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	10.84
Fine Grading On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Mass Grading 01/01/2009-05/08/2009	0.30	2.75	1.35	0.00	3.22	0.14	3.36	0.67	0.13	0.80	276.16
Mass Grading Dust	0.00	0.00	0.00	0.00	3.22	0.00	3.22	0.67	0.00	0.67	0.00
Mass Grading Off Road Diesel	0.25	1.95	1.01	0.00	0.00	0.11	0.11	0.00	0.10	0.10	167.28
Mass Grading On Road Diesel	0.05	0.79	0.25	0.00	0.00	0.03	0.03	0.00	0.03	0.03	101.86
Mass Grading Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.03

Mass Grading 01/05/2009-01/30/2009	0.04	0.33	0.18	0.00	0.15	0.02	0.17	0.03	0.02	0.05	28.64
Mass Grading Dust	0.00	0.00	0.00	0.00	0.15	0.00	0.15	0.03	0.00	0.03	0.00
Mass Grading Off Road Diesel	0.04	0.33	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.62
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02

Phase Assumptions

Phase: Demolition 1/1/2009 - 5/8/2009 - Road Removal

Building Volume Total (cubic feet): 1250

Building Volume Daily (cubic feet): 1250

On Road Truck Travel (VMT): 17.36

Off-Road Equipment:

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Fine Grading 1/1/2009 - 1/7/2009 - Excavation of a new storage facility

Total Acres Disturbed: 3

Maximum Daily Acreage Disturbed: 0.75

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 500

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 5/8/2009 - Pipeline Trench Excavation

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Total Acres Disturbed: 3

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 550

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/5/2009 - 1/30/2009 - Upgrades to Existing WWTP

Total Acres Disturbed: 3

Maximum Daily Acreage Disturbed: 0.75

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/1/2009 - 5/8/2009 - Repaving and site finishing

Acres to be Paved: 3

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

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2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2009 - 5/8/2009 - Pipeline Installation

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

URBEMIS - NO ACTION CONSTRUCTION EMISSIONS

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\206xxx\D206088.00 - North San Pablo Bay\0 D206088.01 Phase II\04 Work Products\04.1 Working Documents\EIR-EIS\Air Quality\URBEMIS\Phase1SVCSD.urb924

Project Name: North San Pablo Recycled Water

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	1.82	14.73	8.42	0.00	11.61	0.83	12.44	2.43	0.76	3.19	1,477.51

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	1.82	14.73	8.42	0.00	11.61	0.83	12.44	2.43	0.76	3.19	1,477.51
Asphalt 01/01/2009-07/02/2009	0.30	1.73	1.07	0.00	0.00	0.15	0.15	0.00	0.14	0.14	139.19
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.29	1.71	0.92	0.00	0.00	0.15	0.15	0.00	0.14	0.14	125.13
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39
Paving Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.67

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Building 01/01/2009-07/02/2009	0.29	1.84	1.67	0.00	0.01	0.11	0.12	0.00	0.10	0.10	247.87
Building Off Road Diesel	0.24	1.34	0.77	0.00	0.00	0.09	0.09	0.00	0.09	0.09	121.00
Building Vendor Trips	0.03	0.47	0.30	0.00	0.00	0.02	0.02	0.00	0.02	0.02	78.05
Building Worker Trips	0.02	0.03	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.82
Demolition 01/01/2009-07/02/2009	0.10	0.60	0.43	0.00	0.03	0.05	0.09	0.01	0.05	0.05	61.14
Fugitive Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.09	0.56	0.33	0.00	0.00	0.05	0.05	0.00	0.05	0.05	49.89
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.58
Demo Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.67
Fine Grading 01/01/2009-09/10/2009	0.67	6.31	3.15	0.00	6.79	0.30	7.09	1.42	0.28	1.69	607.44
Fine Grading Dust	0.00	0.00	0.00	0.00	6.78	0.00	6.78	1.42	0.00	1.42	0.00
Fine Grading Off Road Diesel	0.58	4.74	2.49	0.00	0.00	0.24	0.24	0.00	0.22	0.22	392.31
Fine Grading On Road Diesel	0.09	1.56	0.49	0.00	0.01	0.06	0.06	0.00	0.05	0.06	201.30
Fine Grading Worker Trips	0.01	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.83
Mass Grading 01/01/2009-07/02/2009	0.42	3.91	1.92	0.00	4.58	0.20	4.78	0.96	0.18	1.14	393.23
Mass Grading Dust	0.00	0.00	0.00	0.00	4.58	0.00	4.58	0.96	0.00	0.96	0.00
Mass Grading Off Road Diesel	0.35	2.78	1.44	0.00	0.00	0.15	0.15	0.00	0.14	0.14	238.19
Mass Grading On Road Diesel	0.07	1.13	0.35	0.00	0.01	0.04	0.05	0.00	0.04	0.04	145.04
Mass Grading Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.01

Mass Grading 01/05/2009-01/30/2009	0.04	0.33	0.18	0.00	0.20	0.02	0.22	0.04	0.02	0.06	28.64
Mass Grading Dust	0.00	0.00	0.00	0.00	0.20	0.00	0.20	0.04	0.00	0.04	0.00
Mass Grading Off Road Diesel	0.04	0.33	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.62
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02

Phase Assumptions

Phase: Demolition 1/1/2009 - 7/2/2009 - Road Removal

Building Volume Total (cubic feet): 1250

Building Volume Daily (cubic feet): 1250

On Road Truck Travel (VMT): 17.36

Off-Road Equipment:

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Fine Grading 1/1/2009 - 9/10/2009 - Excavation of new storage facilities

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 552.49

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 7/2/2009 - Pipeline Trench Excavation

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Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 550

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/5/2009 - 1/30/2009 - Upgrades to Existing WWTP

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/1/2009 - 7/2/2009 - Repaving and site finishing

Acres to be Paved: 4

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

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2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2009 - 7/2/2009 - Pipeline Installation

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

URBEMIS - NO ACTION CONSTRUCTION EMISSIONS

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\206xxx\D206088.00 - North San Pablo Bay\0 D206088.01 Phase II\04 Work Products\04.1 Working Documents\EIR-EIS\Air Quality\URBEMIS\Phase1NapaSD.urb924

Project Name: North San Pablo Recycled Water

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	0.67	4.90	3.05	0.00	2.81	0.30	3.12	0.59	0.28	0.87	504.99

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	0.67	4.90	3.05	0.00	2.81	0.30	3.12	0.59	0.28	0.87	504.99
Asphalt 01/01/2009-04/14/2009	0.17	0.99	0.61	0.00	0.00	0.08	0.09	0.00	0.08	0.08	79.67
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.16	0.96	0.52	0.00	0.00	0.08	0.08	0.00	0.08	0.08	70.68
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.60

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Building 01/01/2009-04/14/2009	0.17	1.04	0.95	0.00	0.00	0.06	0.07	0.00	0.06	0.06	140.02
Building Off Road Diesel	0.14	0.76	0.44	0.00	0.00	0.05	0.05	0.00	0.05	0.05	68.35
Building Vendor Trips	0.02	0.26	0.17	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.09
Building Worker Trips	0.01	0.02	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.58
Demolition 01/01/2009-04/14/2009	0.05	0.34	0.24	0.00	0.02	0.03	0.05	0.00	0.03	0.03	34.54
Fugitive Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.05	0.32	0.19	0.00	0.00	0.03	0.03	0.00	0.03	0.03	28.18
Demo On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.59
Demo Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.77
Mass Grading 01/01/2009-04/14/2009	0.24	2.21	1.08	0.00	2.59	0.11	2.70	0.54	0.10	0.64	222.13
Mass Grading Dust	0.00	0.00	0.00	0.00	2.59	0.00	2.59	0.54	0.00	0.54	0.00
Mass Grading Off Road Diesel	0.20	1.57	0.81	0.00	0.00	0.09	0.09	0.00	0.08	0.08	134.55
Mass Grading On Road Diesel	0.04	0.64	0.20	0.00	0.00	0.02	0.03	0.00	0.02	0.02	81.93
Mass Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.65
Mass Grading 01/05/2009-01/30/2009	0.04	0.33	0.18	0.00	0.20	0.02	0.22	0.04	0.02	0.06	28.64
Mass Grading Dust	0.00	0.00	0.00	0.00	0.20	0.00	0.20	0.04	0.00	0.04	0.00
Mass Grading Off Road Diesel	0.04	0.33	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.62
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02

Phase Assumptions

Phase: Demolition 1/1/2009 - 4/14/2009 - Road Removal

Building Volume Total (cubic feet): 1250

Building Volume Daily (cubic feet): 1250

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On Road Truck Travel (VMT): 17.36

Off-Road Equipment:

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 4/14/2009 - Pipeline Trench Excavation

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 550

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/5/2009 - 1/30/2009 - Upgrades to Existing WWTP

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Phase: Paving 1/1/2009 - 4/14/2009 - Repaving and site finishing

Acres to be Paved: 4

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2009 - 4/14/2009 - Pipeline Installation

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

URBEMIS - PHASE 1 CONSTRUCTION EMISSIONS

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\206xxx\D206088.00 - North San Pablo Bay\0 D206088.01 Phase II\04 Work Products\04.1 Working Documents\EIR-EIS\Air Quality\URBEMIS\Phase1LGVSD.urb924

Project Name: North San Pablo Recycled Water

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	1.10	8.09	4.76	0.00	4.76	0.51	5.26	0.99	0.47	1.46	798.31

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	1.10	8.09	4.76	0.00	4.76	0.51	5.26	0.99	0.47	1.46	798.31
Asphalt 01/01/2009-06/26/2009	0.28	1.67	1.04	0.00	0.00	0.14	0.15	0.00	0.13	0.13	133.82
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.28	1.65	0.89	0.00	0.00	0.14	0.14	0.00	0.13	0.13	121.31
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
Paving Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.32

URBEMIS - PHASE 1 CONSTRUCTION EMISSIONS

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Building 01/01/2009-06/26/2009	0.26	1.54	1.19	0.00	0.00	0.10	0.10	0.00	0.09	0.09	178.80
Building Off Road Diesel	0.23	1.30	0.75	0.00	0.00	0.09	0.09	0.00	0.08	0.08	117.30
Building Vendor Trips	0.02	0.23	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01	37.83
Building Worker Trips	0.01	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.67
Demolition 01/01/2009-06/26/2009	0.09	0.58	0.41	0.00	0.03	0.05	0.08	0.01	0.05	0.05	59.28
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.09	0.54	0.32	0.00	0.00	0.05	0.05	0.00	0.04	0.04	48.37
Demo On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44
Demo Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47
Fine Grading 01/01/2009-01/07/2009	0.02	0.17	0.09	0.00	0.17	0.01	0.18	0.04	0.01	0.04	16.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.17	0.00	0.17	0.04	0.00	0.04	0.00
Fine Grading Off Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	10.84
Fine Grading On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Mass Grading 01/01/2009-06/26/2009	0.41	3.80	1.86	0.00	4.44	0.19	4.63	0.93	0.17	1.10	381.53
Mass Grading Dust	0.00	0.00	0.00	0.00	4.44	0.00	4.44	0.93	0.00	0.93	0.00
Mass Grading Off Road Diesel	0.34	2.70	1.40	0.00	0.00	0.15	0.15	0.00	0.14	0.14	230.91
Mass Grading On Road Diesel	0.07	1.09	0.34	0.00	0.00	0.04	0.05	0.00	0.04	0.04	140.91
Mass Grading Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.70

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Mass Grading 01/05/2009-01/30/2009	0.04	0.33	0.18	0.00	0.10	0.02	0.12	0.02	0.02	0.04	28.64
Mass Grading Dust	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.04	0.33	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.62
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02

Phase Assumptions

Phase: Demolition 1/1/2009 - 6/26/2009 - Road Removal

Building Volume Total (cubic feet): 157464

Building Volume Daily (cubic feet): 1250

On Road Truck Travel (VMT): 17.36

Off-Road Equipment:

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Fine Grading 1/1/2009 - 1/7/2009 - Excavation of 1.5 AF storage facility

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 500

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 6/26/2009 - Pipeline Trench Excavation

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Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 551.18

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/5/2009 - 1/30/2009 - site preparation for upgrades

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/1/2009 - 6/26/2009 - Repaving and site finishing

Acres to be Paved: 2

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

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2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2009 - 6/26/2009 - Pipeline Installation

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

URBEMIS - PHASE 1 CONSTRUCTION EMISSIONS

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\206xxx\D206088.00 - North San Pablo Bay\0 D206088.01 Phase II\04 Work Products\04.1 Working Documents\EIR-EIS\Air Quality\URBEMIS\Phase1NovatoSD.urb924

Project Name: North San Pablo Recycled Water

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	1.81	13.31	8.09	0.00	7.78	0.83	8.61	1.63	0.77	2.39	1,346.93

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	1.81	13.31	8.09	0.00	7.78	0.83	8.61	1.63	0.77	2.39	1,346.93
Asphalt 01/01/2009-10/22/2009	0.47	2.78	1.72	0.00	0.00	0.24	0.24	0.00	0.22	0.22	222.14
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.46	2.75	1.48	0.00	0.00	0.24	0.24	0.00	0.22	0.22	201.55
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
Paving Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.80

URBEMIS - PHASE 1 CONSTRUCTION EMISSIONS

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Building 01/01/2009-10/22/2009	0.45	2.76	2.33	0.00	0.01	0.17	0.18	0.00	0.16	0.16	348.15
Building Off Road Diesel	0.39	2.16	1.24	0.00	0.00	0.15	0.15	0.00	0.14	0.14	194.89
Building Vendor Trips	0.04	0.56	0.36	0.00	0.00	0.02	0.02	0.00	0.02	0.02	94.28
Building Worker Trips	0.02	0.04	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.98
Demolition 01/01/2009-10/22/2009	0.15	0.96	0.68	0.00	0.06	0.08	0.14	0.01	0.08	0.09	98.48
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.15	0.90	0.53	0.00	0.00	0.08	0.08	0.00	0.07	0.07	80.36
Demo On Road Diesel	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.37
Demo Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.75
Fine Grading 01/01/2009-01/07/2009	0.02	0.17	0.09	0.00	0.18	0.01	0.19	0.04	0.01	0.05	16.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.18	0.00	0.18	0.04	0.00	0.04	0.00
Fine Grading Off Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	10.84
Fine Grading On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Mass Grading 01/01/2009-10/22/2009	0.68	6.30	3.09	0.00	7.38	0.32	7.70	1.54	0.29	1.83	633.27
Mass Grading Dust	0.00	0.00	0.00	0.00	7.37	0.00	7.37	1.54	0.00	1.54	0.00
Mass Grading Off Road Diesel	0.56	4.48	2.32	0.00	0.00	0.25	0.25	0.00	0.23	0.23	383.64
Mass Grading On Road Diesel	0.11	1.81	0.57	0.00	0.01	0.07	0.08	0.00	0.06	0.06	233.51
Mass Grading Worker Trips	0.01	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.12

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Mass Grading 01/05/2009-01/30/2009	0.04	0.33	0.18	0.00	0.15	0.02	0.17	0.03	0.02	0.05	28.64
Mass Grading Dust	0.00	0.00	0.00	0.00	0.15	0.00	0.15	0.03	0.00	0.03	0.00
Mass Grading Off Road Diesel	0.04	0.33	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.62
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02

Phase Assumptions

Phase: Demolition 1/1/2009 - 10/22/2009 - Road Removal

Building Volume Total (cubic feet): 265302

Building Volume Daily (cubic feet): 1250

On Road Truck Travel (VMT): 17.36

Off-Road Equipment:

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Fine Grading 1/1/2009 - 1/7/2009 - Excavation of a new storage facility

Total Acres Disturbed: 3

Maximum Daily Acreage Disturbed: 0.75

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 500

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 10/22/2009 - Pipeline Trench Excavation

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Total Acres Disturbed: 3

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 549.76

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/5/2009 - 1/30/2009 - Upgrades to Existing WWTP

Total Acres Disturbed: 3

Maximum Daily Acreage Disturbed: 0.75

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/1/2009 - 10/22/2009 - Repaving and site finishing

Acres to be Paved: 3

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

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2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2009 - 10/22/2009 - Pipeline Installation

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

URBEMIS - PHASE 1 CONSTRUCTION EMISSIONS

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\206xxx\D206088.00 - North San Pablo Bay\0 D206088.01 Phase II\04 Work Products\04.1 Working Documents\EIR-EIS\Air Quality\URBEMIS\Phase1SVCSD.urb924

Project Name: North San Pablo Recycled Water

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	3.20	25.31	14.79	0.01	19.20	1.45	20.65	4.01	1.34	5.35	2,550.96

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	3.20	25.31	14.79	0.01	19.20	1.45	20.65	4.01	1.34	5.35	2,550.96
Asphalt 01/01/2009-12/31/2009	0.58	3.43	2.13	0.00	0.00	0.30	0.30	0.00	0.27	0.27	274.96
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.57	3.40	1.84	0.00	0.00	0.30	0.30	0.00	0.27	0.27	249.31
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39
Paving Worker Trips	0.01	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.26

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Building 01/01/2009-12/31/2009	0.58	3.67	3.33	0.00	0.01	0.22	0.23	0.00	0.20	0.21	493.84
Building Off Road Diesel	0.48	2.67	1.54	0.00	0.00	0.19	0.19	0.00	0.17	0.17	241.07
Building Vendor Trips	0.06	0.93	0.60	0.00	0.01	0.03	0.04	0.00	0.03	0.03	155.50
Building Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	97.27
Demolition 01/01/2009-12/31/2009	0.19	1.19	0.85	0.00	0.07	0.10	0.17	0.01	0.09	0.11	121.82
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.18	1.11	0.66	0.00	0.00	0.10	0.10	0.00	0.09	0.09	99.41
Demo On Road Diesel	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.12
Demo Worker Trips	0.01	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.29
Fine Grading 01/01/2009-12/31/2009	0.96	8.89	4.48	0.00	9.78	0.43	10.21	2.04	0.39	2.44	848.34
Fine Grading Dust	0.00	0.00	0.00	0.00	9.77	0.00	9.77	2.04	0.00	2.04	0.00
Fine Grading Off Road Diesel	0.83	6.84	3.59	0.00	0.00	0.35	0.35	0.00	0.32	0.32	565.71
Fine Grading On Road Diesel	0.12	2.04	0.64	0.00	0.01	0.08	0.08	0.00	0.07	0.07	262.70
Fine Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.94
Mass Grading 01/01/2009-12/31/2009	0.84	7.80	3.82	0.00	9.13	0.39	9.52	1.91	0.36	2.27	783.36
Mass Grading Dust	0.00	0.00	0.00	0.00	9.12	0.00	9.12	1.91	0.00	1.91	0.00
Mass Grading Off Road Diesel	0.70	5.54	2.87	0.00	0.00	0.31	0.31	0.00	0.28	0.28	474.55
Mass Grading On Road Diesel	0.13	2.24	0.71	0.00	0.01	0.08	0.09	0.00	0.08	0.08	288.87
Mass Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.94

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Mass Grading 01/05/2009-01/30/2009	0.04	0.33	0.18	0.00	0.20	0.02	0.22	0.04	0.02	0.06	28.64
Mass Grading Dust	0.00	0.00	0.00	0.00	0.20	0.00	0.20	0.04	0.00	0.04	0.00
Mass Grading Off Road Diesel	0.04	0.33	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.62
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02

Phase Assumptions

Phase: Demolition 1/1/2009 - 12/31/2009 - Road Removal

Building Volume Total (cubic feet): 325542.7

Building Volume Daily (cubic feet): 1250

On Road Truck Travel (VMT): 17.36

Off-Road Equipment:

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Fine Grading 1/1/2009 - 12/31/2009 - Excavation of new storage facilities

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 500

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 12/31/2009 - Pipeline Trench Excavation

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Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 549.81

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/5/2009 - 1/30/2009 - Upgrades to Existing WWTP

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/1/2009 - 12/31/2009 - Repaving and site finishing

Acres to be Paved: 4

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

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2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2009 - 12/31/2009 - Pipeline Installation

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

URBEMIS - PHASE 1 CONSTRUCTION EMISSIONS

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\206xxx\D206088.00 - North San Pablo Bay\0 D206088.01 Phase II\04 Work Products\04.1 Working Documents\EIR-EIS\Air Quality\URBEMIS\Phase1NapaSD.urb924

Project Name: North San Pablo Recycled Water

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	2.24	16.42	10.31	0.01	9.41	1.03	10.44	1.97	0.95	2.91	1,702.61

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	2.24	16.42	10.31	0.01	9.41	1.03	10.44	1.97	0.95	2.91	1,702.61
Asphalt 01/01/2009-12/31/2009	0.58	3.43	2.13	0.00	0.00	0.30	0.30	0.00	0.27	0.27	274.96
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.57	3.40	1.84	0.00	0.00	0.30	0.30	0.00	0.27	0.27	249.31
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39
Paving Worker Trips	0.01	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.26

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Building 01/01/2009-12/31/2009	0.58	3.67	3.33	0.00	0.01	0.22	0.23	0.00	0.20	0.21	493.84
Building Off Road Diesel	0.48	2.67	1.54	0.00	0.00	0.19	0.19	0.00	0.17	0.17	241.07
Building Vendor Trips	0.06	0.93	0.60	0.00	0.01	0.03	0.04	0.00	0.03	0.03	155.50
Building Worker Trips	0.04	0.07	1.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	97.27
Demolition 01/01/2009-12/31/2009	0.19	1.19	0.85	0.00	0.07	0.10	0.17	0.01	0.09	0.11	121.82
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.18	1.11	0.66	0.00	0.00	0.10	0.10	0.00	0.09	0.09	99.41
Demo On Road Diesel	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.12
Demo Worker Trips	0.01	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.29
Mass Grading 01/01/2009-12/31/2009	0.84	7.80	3.82	0.00	9.13	0.39	9.52	1.91	0.36	2.27	783.36
Mass Grading Dust	0.00	0.00	0.00	0.00	9.12	0.00	9.12	1.91	0.00	1.91	0.00
Mass Grading Off Road Diesel	0.70	5.54	2.87	0.00	0.00	0.31	0.31	0.00	0.28	0.28	474.55
Mass Grading On Road Diesel	0.13	2.24	0.71	0.00	0.01	0.08	0.09	0.00	0.08	0.08	288.87
Mass Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.94
Mass Grading 01/05/2009-01/30/2009	0.04	0.33	0.18	0.00	0.20	0.02	0.22	0.04	0.02	0.06	28.64
Mass Grading Dust	0.00	0.00	0.00	0.00	0.20	0.00	0.20	0.04	0.00	0.04	0.00
Mass Grading Off Road Diesel	0.04	0.33	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.62
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02

Phase Assumptions

Phase: Demolition 1/1/2009 - 12/31/2009 - Road Removal

Building Volume Total (cubic feet): 325542.7

Building Volume Daily (cubic feet): 1250

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On Road Truck Travel (VMT): 17.36

Off-Road Equipment:

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 12/31/2009 - Pipeline Trench Excavation

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 550 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 549.81

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/5/2009 - 1/30/2009 - Upgrades to Existing WWTP

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Phase: Paving 1/1/2009 - 12/31/2009 - Repaving and site finishing

Acres to be Paved: 4

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2009 - 12/31/2009 - Pipeline Installation

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Summary of Indirect and Direct GHG Emission from Operations

No Action Alternative					
	CO2e Emissions (metric tons/year)				
Source	LGVSD [a]	SVCSD [b]	Novato SD [c]	Napa SD [d]	All Districts
Indirect Emissions (Electricity)	0.0	76.7	31.9	6.4	115.1
Direct Emissions (Vehicles)	0.0	0.8	0.6	0.4	1.8
Total Emissions	0.0	77.5	32.5	6.9	116.9
Percentage of 25,000	0.00%	0.31%	0.13%	0.03%	0.47%

[a] Assumes weekly round trip inspection of 0 miles of new pipeline and an emission rate of 2.7 lb/mile.
[b] Assumes weekly round trip inspection of 6.2 miles of new pipeline and an emission rate of 2.7 lb/mile.
[c] Assumes weekly round trip inspection of 4.4 miles of new pipeline and an emission rate of 2.7 lb/mile.
[d] Assumes weekly round trip inspection of 3.5 miles of new pipeline and an emission rate of 2.7 lb/mile.

Phase 1					
	CO2e Emissions (metric tons/year)				
Source	LGVSD [a]	SVCSD [b]	Novato SD [c]	Napa SD [d]	All Districts
Indirect Emissions (Electricity)	9.3	112.5	33.1	356.7	511.5
Direct Emissions (Vehicles)	0.8	1.7	1.3	2.2	5.9
Total Emissions	10.0	114.1	34.4	358.9	517.4
Percentage of 25,000	0.04%	0.46%	0.14%	1.44%	2.07%

[a] Assumes weekly round trip inspection of 5.9 miles of new pipeline and an emission rate of 2.7 lb/mile.
[b] Assumes weekly round trip inspection of 13.2 miles of new pipeline and an emission rate of 2.7 lb/mile.
[c] Assumes weekly round trip inspection of 9.9 miles of new pipeline and an emission rate of 2.7 lb/mile.
[d] Assumes weekly round trip inspection of 17.5 miles of new pipeline and an emission rate of 2.7 lb/mile.

Alternative 1					
	CO2e Emissions (metric tons/year)				
Source	LGVSD [a]	SVCSD [b]	Novato SD [c]	Napa SD [d]	All Districts
Indirect Emissions (Electricity)	9.3	169.9	33.1	370.5	582.8
Direct Emissions (Vehicles)	0.8	4.3	1.6	4.0	10.6
Total Emissions	10.0	174.2	34.7	374.4	593.3
Percentage of 25,000	0.04%	0.70%	0.14%	1.50%	2.37%

[a] Assumes weekly round trip inspection of 5.9 miles of new pipeline and an emission rate of 2.7 lb/mile.
[b] Assumes weekly round trip inspection of 33.7 miles of new pipeline and an emission rate of 2.7 lb/mile.
[c] Assumes weekly round trip inspection of 12.4 miles of new pipeline and an emission rate of 2.7 lb/mile.
[d] Assumes weekly round trip inspection of 31.1 miles of new pipeline and an emission rate of 2.7 lb/mile.

Alternative 2					
	CO2e Emissions (metric tons/year)				
Source	LGVSD [a]	SVCSD [b]	Novato SD [c]	Napa SD [d]	All Districts
Indirect Emissions (Electricity)	43.1	260.6	74.6	407.2	785.5
Direct Emissions (Vehicles)	2.3	5.3	4.6	5.6	17.8
Total Emissions	45.4	266.0	79.2	412.8	803.3
Percentage of 25,000	0.18%	1.06%	0.32%	1.65%	3.21%

[a] Assumes weekly round trip inspection of 17.9 miles of new pipeline and an emission rate of 2.7 lb/mile.
[b] Assumes weekly round trip inspection of 42 miles of new pipeline and an emission rate of 2.7 lb/mile.
[c] Assumes weekly round trip inspection of 36 miles of new pipeline and an emission rate of 2.7 lb/mile.
[d] Assumes weekly round trip inspection of 44.1 miles of new pipeline and an emission rate of 2.7 lb/mile.

Alternative 3					
	CO2e Emissions (metric tons/year)				
Source	LGVSD [a]	SVCSD [b]	Novato SD [c]	Napa SD [d]	All Districts
Indirect Emissions (Electricity)	57.4	372.1	123.4	407.2	960.1
Direct Emissions (Vehicles)	2.3	5.6	6.0	5.6	19.5
Total Emissions	59.7	377.8	129.4	412.8	979.7
Percentage of 25,000	0.24%	1.51%	0.52%	1.65%	3.92%

[a] Assumes weekly round trip inspection of 17.9 miles of new pipeline and an emission rate of 2.7 lb/mile.
[b] Assumes weekly round trip inspection of 44.2 miles of new pipeline and an emission rate of 2.7 lb/mile.
[c] Assumes weekly round trip inspection of 47.1 miles of new pipeline and an emission rate of 2.7 lb/mile.
[d] Assumes weekly round trip inspection of 44.1 miles of new pipeline and an emission rate of 2.7 lb/mile.

Greenhouse Gas (GHG) Emissions Calculations - No Action Alternative

Project Name: North San Pablo Recycled Water Project
ESA Proj. Number: D206088.01

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

LGVSD

Estimated Project Annual Electrical Use: 0 kWh (kilowatt hours)/year
0 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	0	0	1	0
Nitrous Oxide (N2O)	0.0037	0	0.0	296	0
Methane (CH4)	0.0067	0	0.0	23	0
Total Indirect GHG Emissions from LGVSD Electricity Use=					**0**

Novato SD

Estimated Project Annual Electrical Use: 134,000 kWh (kilowatt hours)/year
134 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	134	32	1	32
Nitrous Oxide (N2O)	0.0037	134	0.0	296	0
Methane (CH4)	0.0067	134	0.0	23	0
Total Indirect GHG Emissions from Novato Electricity Use=					**32**

SVCSD

Estimated Project Annual Electrical Use: 322,000 kWh (kilowatt hours)/year
322 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	322	77	1	77
Nitrous Oxide (N2O)	0.0037	322	0.0	296	0
Methane (CH4)	0.0067	322	0.0	23	0
Total Indirect GHG Emissions from SVCSD Electricity Use=					**77**

Napa SD

Estimated Project Annual Electrical Use: 27,000 kWh (kilowatt hours)/year
27 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	27	6	1	6
Nitrous Oxide (N2O)	0.0037	27	0.0	296	0
Methane (CH4)	0.0067	27	0.0	23	0
Total Indirect GHG Emissions from Napa SD Electricity Use=					**6**

Total Indirect Emissions From Electricity Use (No Action)	
Service Area	**Annual CO2 Equivalent Emissions (metric tons)**
LGVSD	0
Novato SD	32
SVCSD	77
Napa SD	6
Total Indirect Emissions From Electricity Use (No Action) =	**115**

Notes and References:

Total Emissions from Indirect Electricity Use
Formula and Emission Factor from The California Climate Action Registry Report Protocol, April 2008 update

Pg. 33 (CCARRP) gives Equations

Pg. 90 (CCARRP) gives CO2 equivalency factors

Pg. 92 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
Methane - 0.0067 (lbs/mWh)
Nitrous Oxide - 0.0037 (lbs/mWh)

Carbon Dioxide Emission Factor from PG&E Carbon Footprint Calculator (http://www.pge.com/myhome/environment/calculator/)

lbs/metric ton = 2204.62

Percentage of 25,000	0.5%
Percentage of 174 Million	0.000%

Greenhouse Gas (GHG) Emissions Calculations - Phase 1

Project Name: North San Pablo Recycled Water Project
ESA Proj. Number: D206088.01

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

LGVSD

Estimated Project Annual Electrical Use: 39,000 kWh (kilowatt hours)/year
39 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	39	9	1	9
Nitrous Oxide (N2O)	0.0037	39	0.0	296	0
Methane (CH4)	0.0067	39	0.0	23	0
Total Indirect GHG Emissions from LGVSD Electricity Use=					**9**

Novato SD

Estimated Project Annual Electrical Use: 139,000 kWh (kilowatt hours)/year
139 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	139	33	1	33
Nitrous Oxide (N2O)	0.0037	139	0.0	296	0
Methane (CH4)	0.0067	139	0.0	23	0
Total Indirect GHG Emissions from Novato Electricity Use=					**33**

SVCSD

Estimated Project Annual Electrical Use: 472,000 kWh (kilowatt hours)/year
472 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	472	112	1	112
Nitrous Oxide (N2O)	0.0037	472	0.0	296	0
Methane (CH4)	0.0067	472	0.0	23	0
Total Indirect GHG Emissions from SVCSD Electricity Use=					**112**

Napa SD

Estimated Project Annual Electrical Use: 1,497,000 kWh (kilowatt hours)/year
1,497 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	1,497	356	1	356
Nitrous Oxide (N2O)	0.0037	1,497	0.0	296	1
Methane (CH4)	0.0067	1,497	0.0	23	0
Total Indirect GHG Emissions from Napa SD Electricity Use=					**357**

Total Indirect Emissions From Electricity Use (Phase 1)	
Service Area	**Annual CO2 Equivalent Emissions (metric tons)**
LGVSD	9
Novato SD	33
SVCSD	112
Napa SD	357
Total Indirect Emissions From Electricity Use (Phase 1) =	**512**

Notes and References:

Total Emissions from Indirect Electricity Use
Formula and Emission Factor from The California Climate Action Registry Report Protocol, April 2008 update

Pg. 33 (CCARRP) gives Equations

Pg. 90 (CCARRP) gives CO2 equivalency factors

Pg. 92 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
Methane - 0.0067 (lbs/mWh)
Nitrous Oxide - 0.0037 (lbs/mWh)

Carbon Dioxide Emission Factor from PG&E Carbon Footprint Calculator (http://www.pge.com/myhome/environment/calculator/)

lbs/metric ton = 2204.62

Percentage of 25,000	2.0%
Percentage of 174 Million	0.000%

Greenhouse Gas (GHG) Emissions Calculations - Alternative 1

Project Name: North San Pablo Recycled Water Project
ESA Proj. Number: D206088.01

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

LGVSD

Estimated Project Annual Electrical Use: 39,000 kWh (kilowatt hours)/year
39 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	39	9	1	9
Nitrous Oxide (N2O)	0.0037	39	0.0	296	0
Methane (CH4)	0.0067	39	0.0	23	0
Total Indirect GHG Emissions from LGVSD Electricity Use=					**9**

Novato SD

Estimated Project Annual Electrical Use: 139,000 kWh (kilowatt hours)/year
139 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	139	33	1	33
Nitrous Oxide (N2O)	0.0037	139	0.0	296	0
Methane (CH4)	0.0067	139	0.0	23	0
Total Indirect GHG Emissions from Novato Electricity Use=					**33**

SVCSD

Estimated Project Annual Electrical Use: 713,000 kWh (kilowatt hours)/year
713 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	713	169	1	169
Nitrous Oxide (N2O)	0.0037	713	0.0	296	0
Methane (CH4)	0.0067	713	0.0	23	0
Total Indirect GHG Emissions from SVCSD Electricity Use=					**170**

Napa SD

Estimated Project Annual Electrical Use: 1,555,000 kWh (kilowatt hours)/year
1,555 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	1,555	370	1	370
Nitrous Oxide (N2O)	0.0037	1,555	0.0	296	1
Methane (CH4)	0.0067	1,555	0.0	23	0
Total Indirect GHG Emissions from Napa SD Electricity Use=					**370**

Total Indirect Emissions From Electricity Use (Alternative 1)	
Service Area	**Annual CO2 Equivalent Emissions (metric tons)**
LGVSD	9
Novato SD	33
SVCSD	170
Napa SD	370
Total Indirect Emissions From Electricity Use (Alternative 1) =	**583**

Notes and References:

Total Emissions from Indirect Electricity Use
Formula and Emission Factor from The California Climate Action Registry Report Protocol, April 2008 update

Pg. 33 (CCARRP) gives Equations

Pg. 90 (CCARRP) gives CO2 equivalency factors

Pg. 92 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
Methane - 0.0067 (lbs/mWh)
Nitrous Oxide - 0.0037 (lbs/mWh)

Carbon Dioxide Emission Factor from PG&E Carbon Footprint Calculator (http://www.pge.com/myhome/environment/calculator/)

lbs/metric ton = 2204.62

Percentage of 25,000	2.3%
Percentage of 174 Million	0.000%

Greenhouse Gas (GHG) Emissions Calculations - Alternative 2

Project Name: North San Pablo Recycled Water Project
ESA Proj. Number: D206088.01

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

LGVSD

Estimated Project Annual Electrical Use: 181,000 kWh (kilowatt hours)/year
181 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	181	43	1	43
Nitrous Oxide (N2O)	0.0037	181	0.0	296	0
Methane (CH4)	0.0067	181	0.0	23	0
Total Indirect GHG Emissions from LGVSD Electricity Use=					**43**

Novato SD

Estimated Project Annual Electrical Use: 313,000 kWh (kilowatt hours)/year
313 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	313	74	1	74
Nitrous Oxide (N2O)	0.0037	313	0.0	296	0
Methane (CH4)	0.0067	313	0.0	23	0
Total Indirect GHG Emissions from Novato Electricity Use=					**75**

SVCSD

Estimated Project Annual Electrical Use: 1,094,000 kWh (kilowatt hours)/year
1,094 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	1,094	260	1	260
Nitrous Oxide (N2O)	0.0037	1,094	0.0	296	1
Methane (CH4)	0.0067	1,094	0.0	23	0
Total Indirect GHG Emissions from SVCSD Electricity Use=					**261**

Napa SD

Estimated Project Annual Electrical Use: 1,709,000 kWh (kilowatt hours)/year
1,709 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	1,709	406	1	406
Nitrous Oxide (N2O)	0.0037	1,709	0.0	296	1
Methane (CH4)	0.0067	1,709	0.0	23	0
Total Indirect GHG Emissions from Napa SD Electricity Use=					**407**

Total Indirect Emissions From Electricity Use (Alternative 2)	
Service Area	**Annual CO2 Equivalent Emissions (metric tons)**
LGVSD	43
Novato SD	75
SVCSD	261
Napa SD	407
Total Indirect Emissions From Electricity Use (Alternative 2) =	**786**

Notes and References:

Total Emissions from Indirect Electricity Use
Formula and Emission Factor from The California Climate Action Registry Report Protocol, April 2008 update

Pg. 33 (CCARRP) gives Equations

Pg. 90 (CCARRP) gives CO2 equivalency factors

Pg. 92 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
Methane - 0.0067 (lbs/mWh)
Nitrous Oxide - 0.0037 (lbs/mWh)

Carbon Dioxide Emission Factor from PG&E Carbon Footprint Calculator (http://www.pge.com/myhome/environment/calculator/)

lbs/metric ton = 2204.62

Percentage of 25,000	3.1%
Percentage of 174 Million	0.000%

Greenhouse Gas (GHG) Emissions Calculations - Alternative 3

Project Name: North San Pablo Recycled Water Project
ESA Proj. Number: D206088.01

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

LGVSD

Estimated Project Annual Electrical Use: 241,000 kWh (kilowatt hours)/year
241 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	241	57	1	57
Nitrous Oxide (N2O)	0.0037	241	0.0	296	0
Methane (CH4)	0.0067	241	0.0	23	0
Total Indirect GHG Emissions from LGVSD Electricity Use=					**57**

Novato SD

Estimated Project Annual Electrical Use: 518,000 kWh (kilowatt hours)/year
518 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	518	123	1	123
Nitrous Oxide (N2O)	0.0037	518	0.0	296	0
Methane (CH4)	0.0067	518	0.0	23	0
Total Indirect GHG Emissions from Novato Electricity Use=					**123**

SVCSD

Estimated Project Annual Electrical Use: 1,562,000 kWh (kilowatt hours)/year
1,562 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	1,562	371	1	371
Nitrous Oxide (N2O)	0.0037	1,562	0.0	296	1
Methane (CH4)	0.0067	1,562	0.0	23	0
Total Indirect GHG Emissions from SVCSD Electricity Use=					**372**

Napa SD

Estimated Project Annual Electrical Use: 1,709,000 kWh (kilowatt hours)/year
1,709 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	1,709	406	1	406
Nitrous Oxide (N2O)	0.0037	1,709	0.0	296	1
Methane (CH4)	0.0067	1,709	0.0	23	0
Total Indirect GHG Emissions from Napa SD Electricity Use=					**407**

Total Indirect Emissions From Electricity Use (Alternative 3)	
Service Area	**Annual CO2 Equivalent Emissions (metric tons)**
LGVSD	57
Novato SD	123
SVCSD	372
Napa SD	407
Total Indirect Emissions From Electricity Use (Alternative 3) =	**960**

Notes and References:

Total Emissions from Indirect Electricity Use
Formula and Emission Factor from The California Climate Action Registry Report Protocol, April 2008 update

Pg. 33 (CCARRP) gives Equations

Pg. 90 (CCARRP) gives CO2 equivalency factors

Pg. 92 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
Methane - 0.0067 (lbs/mWh)
Nitrous Oxide - 0.0037 (lbs/mWh)

Carbon Dioxide Emission Factor from PG&E Carbon Footprint Calculator (http://www.pge.com/myhome/environment/calculator/)

lbs/metric ton = 2204.62

Percentage of 25,000	3.8%
Percentage of 174 Million	0.001%

APPENDIX 3.9
Noise

Federal, State, and local agencies regulate different aspects of environmental noise. Federal and State agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans tend to identify general principles intended to guide and influence development plans, while local noise ordinances establish standards and procedures for addressing specific noise sources and activities. The following discussions summarize the local regulatory framework in the project area.

LGVSD

City of San Rafael

The following policy included in the Noise Element of the City of San Rafael's General Plan may be applicable to the proposed project (City of San Rafael, 2004):

> *Policy N-10b. Mitigation for Construction Activity Noise*. Through environmental review, identify mitigation measures to minimize the exposure of neighboring properties to excessive noise levels from construction related activity.

The City of San Rafael's Municipal Code sets noise restrictions under Chapter 8.13, Noise. According to this ordinance, no person shall produce, suffer, or allow to be produced by any machine, animal or device, or by any other means, noise levels greater than those outlined in **Table 3.9-1**.

TABLE 3.9-1
CITY OF SAN RAFAEL NOISE LEVEL STANDARDS (EXPRESSED IN DBA)

Property Zone or Type	Daytime Limits (intermittent)	Daytime Limits (constant)	Nighttime Limits (intermittent)	Nighttime Limits (constant)
Residential	60	50	50	40
Mixed-Use	65	55	55	45
Multifamily residential (interior sound source)	40	35	35	30
Commercial	65	55	65	55
Industrial	70	60	70	60
Public Property	Most restrictive noise limit applicable to adjoining private property.			

SOURCE: City of San Rafael, 2008.

Construction equipment is except from the noise standards outline in Table 3.9-1. However, construction activities are only permitted between the hours of 7 a.m. and 6 p.m. on Monday through Friday, and between the hours of 9 a.m. and 6 p.m. on Saturdays, provided that noise levels do not exceed 90 dBA at any point outside of the property plane. Furthermore, construction activities are prohibited on Sundays and holidays. For any construction project involving the construction of one or more new buildings or residences within the city, or when required by the planning commission or city council as part of their development review for the property, the property owner or occupant shall post a sign at all entrances of the construction site upon commencement of construction for the purpose of informing all contractors and subcontractors and construction workers of the hours in which construction is permitted as defined in the City's noise ordinance (City of San Rafael, 2008).

Unincorporated Marin County

Policies and program included in the Marin Countywide Plan that may be applicable to the proposed project include the following (Marin County, 2007):

> *Policy NO-1.3. Regulate Noise Generating Activities*. Require measures to minimize noise exposure to neighboring properties, open space, and wildlife habitat from construction-related activities, yard maintenance equipment, and other noise sources, such as amplified music.
>
> *Implementing Program NO-1.i. Regulate Noise Sources*. Sections 6.70.030(5) and 6.70.040 of the Marin County Code establish allowable hours of operation for construction-related activities. As a condition of permit approval for projects generating significant construction noise impacts during the construction phase, construction management for any project shall develop a construction noise reduction plan and designate a disturbance coordinator at the construction site to implement provisions of the plan.

Chapter 6.70 of the Marin County code limits the hours during which construction activities are permitted to between the hours of 7 a.m. and 6 p.m. on Monday through Friday and between 9 a.m. and 5 p.m. on Saturdays. Construction activities are strictly prohibited on Sundays and Holidays. The code also states that loud noise-generating construction-related equipment such as backhoes, generators, and jackhammers, can be maintained, operated, or serviced at a construction site for permits administered by the community development agency from 8 a.m. to 5 p.m. on Monday through Friday only. Special exemptions may occur for construction projects of the city, County, State, other public agency, or other public utility (Marin County, 2008).

Novato SD

City of Novato

The Noise Element of the City of Novato General Plan identifies noise/land use compatibility guidelines for development in the City and contains policies addressing community noise issues. The General Plan has identified acceptable noise levels for residential uses with a maximum conditionally acceptable exterior noise level of 60 dBA, and an interior noise standard of 45 dBA

(City of Novato 1996). Additionally, the following General Plan objectives may apply to the proposed project (City of Novato, 1996):

> *Objective 11*: Ensure compatibility of new development with existing and future noise levels.
>
> *Objective 12*: Prevent land uses which increase the noise level above acceptable standards or require mitigation to reduce noise to acceptable levels.
>
> *Objective 13*: Reduce noise to acceptable levels where it now exceeds those standards whenever feasible and practical.

Chapter 19.22 of the City of Novato Municipal Code sets forth noise restrictions for sources located within the City. **Table 3.9-2** presents allowable exterior noise levels as set forth in the Municipal Code.

TABLE 3.9-2
CITY OF NOVATO ALLOWABLE EXTERIOR NOISE LEVELS

Type of Land Use	Allowable Exterior Levels[a]	
	Time Interval	Maximum Noise Level[b]
Residential	10 p.m. to 6 a.m.	45 dBA
	6 a.m. to 10 p.m.	60 dBA
Commercial	10 p.m. to 6 a.m.	60 dBA
	6 a.m. to 10 p.m.	70 dBA
Industrial or Manufacturing	Anytime	70 dBA

[a] Each of the noise limits specified in Table 3.9-2 shall be reduced by 5 dBA for impulse or simple tone noises. If ambient noise exceeds the resulting standard, the ambient shall be the standard.

[b] Maximum noise levels shall not be exceeded for an aggregate period of more than three minutes within one-hour time period or by more than 20 dBA at any time.

SOURCE: City of Novato, 2008.

Authorized construction activities are exempt from noise level standards set forth in Table 3.9-2; however, these activities are limited to between the hours of 7 a.m. and 6 p.m. on weekdays and between the hours of 10 a.m. and 5 p.m. on Saturdays. Construction activities are not permitted on Sundays or on official federal holidays. Authorized grading activities and equipment operations are only permitted between 7 a.m. and 6 p.m. on weekdays when city inspectors are available to monitor activities (City of Novato, 2008).

In addition to noise restrictions, the Municipal Code also states that activities shall not generate ground vibration that is perceptible without instruments by the average person at any point along or beyond the property line of the parcel containing the activities. Temporary vibration from construction, demolition, and vehicles associated with construction are exempt (City of Novato, 2008).

Unincorporated Marin County

See discussion under LGVSD Service Area.

SVCSD

City of Sonoma

The Noise Element of the City of Sonoma 2020 General Plan contains the following policies and implementation measure that may be applicable to the proposed project (City of Sonoma, 2006):

> *Policy 1.1*. Apply the following standards for maximum Ldn levels to citywide development:
>
> > *45 Ldn:* For indoor environments in all residential units.
> >
> > *60 Ldn:* For outdoor environments around all residential developments and outdoor public facilities (e.g., parks)
> >
> > *65 Ldn:* For outdoor environments around commercial and public buildings (libraries and churches).
> >
> > *70 Ldn:* For outdoor environments around industrial buildings.
>
> *Policy 1.6*. Minimize noise impacts of vehicle idling.
>
> *Implementation Measure 1.6*. Require buses and trucks parked anywhere in the city longer than five minutes to shut off their engines, except when they are actively unloading or loading passengers or goods.

City of Sonoma's Municipal Code Chapter 9.56, *Noise*, outlines noise limits applicable to sources within the City. General exterior noise level standards are outlined in **Table 3.9-3**.

TABLE 3.9-3
CITY OF SONOMA NOISE LEVEL STANDARDS (EXPRESSED IN DBA)

Property Zone or Type	Daytime Limits (intermittent)	Daytime Limits (constant)	Nighttime Limits (intermittent)	Nighttime Limits (constant)
Residential	60	50	50	40
Commercial/Mixed-Use	65	55	65	55
Public Property	Most restrictive noise limit applicable to adjoining private property.			

SOURCE: City of Sonoma, 2008.

Construction activities are exempt from the limits outlined in the table above; however, they are limited to between the hours of 8 a.m. and 6 p.m. on Monday through Friday, between 9 a.m. and 6 p.m. on Saturdays, and between 10 a.m. and 6 p.m. on Sundays and holidays. Additionally, noise levels generated by construction equipment must not exceed 90 dBA at any point outside of the property line. The Code also states that the City may require that the owner or occupant of the construction site to post the construction time restrictions at all entrances to the property to notify

all contractors and subcontractors of basic noise requirements prior to commencing construction activities (City of Sonoma, 2008).

Sonoma County

Goal NE-1 of the Sonoma County General Plan Noise Element is to "protect people from the harmful effects of exposure to excessive noise and to achieve an environment in which people and land uses may function without impairment from noise" (Sonoma County, 1998). This goal aims to protect persons from existing or future excessive levels of noise that interfere with sleep, communication, relaxation, health, or legally permitted use of property. To achieve this goal, the Noise Element contains the following policies that may be applicable to the proposed project:

> *Policy NE-1a*: Designate areas within Sonoma County as noise impacted if they are exposed to existing or projected exterior noise levels exceeding 60 dB DNL, 60 dB CNEL, or the performance standards of Table NE-2 of the Noise Element (shown below as **Table 3.9-4)**.

TABLE 3.9-4
SONOMA COUNTY MAXIMUM ALLOWABLE EXTERIOR NOISE STANDARDS[a,b]

Category	Cumulative Duration of Noise Event in any One-Hour Period (minutes) [c]	Maximum Allowable Noise Level Standards (dBA)	
		Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
1	30 – 60	50	45
2	15 – 30	55	50
3	5 – 15	60	55
4	1 – 5	65	60
5	0 – 1	70	65

[a] In recognition of ambient noise, the ordinance allows the standards set forth in this table to be adjusted in 5 dBA increments to encompass the ambient noise level. For example, if the ambient noise level for a given hour was 57 dBA, the daytime L_{50} noise standard would be increased by an increment of 5 dBA from 55 to 60 dBA.

[b] The ordinance also states that the standards identified in this table should be reduced by 5 dBA for impulsive or simple tone noises, or for noises consisting of speech or music. "Impulsive noise" means a noise characterized by brief excursions of sound pressures whose peak levels are very much greater than the ambient noise level, such as might be produced by the impact of a pile driver, punch press or a drop hammer, typically with duration of one second or less. "Simple tone noise" or "pure tone noise" means a noise characterized by the presence of a predominant frequency or frequencies such as might be produced by a whistle or hum.

[c] The concept of "30 minutes in an hour" is equivalent to the L_{50}, which is a noise descriptor identifying the noise level exceeded one-half (50 percent) of the time. Likewise, "15 minutes in an hour," "5 minutes in an hour," and "1 minute in an hour" are equivalent to the L_{25}, $L_{8.3}$, and $L_{1.7}$, respectively. L_{max}, or maximum noise level, represents the standard defined in terms of "0 minutes in an hour" which is the noise level not to be exceeded at all in a given hour. L_{eq}, or equivalent noise level represents the standard defined in terms of "60 minutes in an hour."

SOURCE: Sonoma County, 1998.

> *Policy NE-1c*: Control non-transportation related noise from new projects such that the total noise level resulting from new sources and ambient noise shall not exceed the standards in Table NE-2 (Table 3.9-4 in this EIR).

> *Policy NE-1f*: Require development projects which do not include or affect residential uses or other noise sensitive uses to include noise mitigation measures where necessary to maintain noise levels compatible with activities planned for the proposed project site and vicinity.

The County of Sonoma General Plan Noise Element does not specifically address intermittent or short-term construction noises and there is currently no adopted noise ordinance under the Sonoma County Code. The General Plan calls for the County to adopt a noise ordinance that will include noise performance standards as outlined in Table 3.9-4 as well as exemptions, measurement methods, and procedures for variances.

Napa SD

City of Napa

The goal of the City of Napa General Plan Noise Element is to "protect Napa's residents, workers, and visitors from the deleterious effects of noise" (City of Napa, 2007). Policies contained in the Noise Element that may be applicable to the proposed project include the following:

> *Policy HS-9.2*: The City shall use CEQA and the development review processes to ensure that new development does not exceed City standards.
>
> *Policy HS-9.5*: The City shall continue to enforce state muffler and exhaust laws.
>
> *Policy HS-9.9*: When feasible and appropriate, the City shall limit construction activities to that portion of the day when the number of persons occupying a potential noise impact area is lowest.
>
> *Policy HS-9.11*: The City shall regulate construction in a manner that allows for efficient construction mobilization and activities, while also protecting noise sensitive land uses.

Chapter 8.08, *Noise Control Regulations*, of the City of Napa Municipal Code imposes a number of restrictions on construction activities. This code restricts construction activities throughout the entire duration of the project to between the hours of 7 a.m. and 7 p.m. on Monday through Friday. Construction on weekends and holidays is limited to the hours of 8 a.m. to 4 p.m. unless a permit is obtained from the City. Furthermore, the code prohibits the start up of machines and equipment prior to 8 a.m. on Monday through Friday and also prohibits the delivery of materials prior to 7:30 a.m. and after 5:00 p.m. on Monday through Friday. Machines and equipment may not be cleaned past 6 p.m. on Monday through Friday and they cannot be serviced after 6:45 p.m. on Monday through Friday. All muffler systems on construction equipment must be properly maintained and all construction and grading equipment must be shut down when not in use. All construction equipment shall not be placed adjacent to developed areas unless the equipment is provided with acoustical shielding (City of Napa, 2008).

Napa County

The main goal of the Napa County General Plan Noise Element is to "minimize the impacts of noise pollution from railroads, highways, industry, agricultural uses, airports, and recreation areas and to conduct its land use planning and development in such a manner as to minimize activities producing unacceptable noise pollution" (Napa County, 1990). This goal aims protect persons from existing or future excessive levels of noise that interfere with sleep, communication, relaxation, health, or legally permitted use of property, and to keep future planning and

development consistent with low levels of noise. One policy included in the general plan that may be applicable to the proposed project requires that environmental assessment documents for new projects include an analysis of existing and anticipated noise impacts if such are likely to impact on or be produced by the product(s) (Napa County, 1990).

Chapter 8.16 of the Napa County Code outlines noise control regulations applicable to noise sources located within the County. Exterior noise levels set forth in the code are outlined in **Table 3.9-5**.

TABLE 3.9-5
NAPA COUNTY EXTERIOR NOISE LIMITS

Receiving Land Use Category	Time Period	Noise Level (dBA)		
		Rural	Suburban	Urban
Residential (single and double)	10 p.m. – 7 a.m.	45	45	50
	7 a.m. – 10 p.m.	50	55	60
Residential (multiple and country)	10 p.m. – 7 a.m.	45	50	55
	7 a.m. – 10 p.m.	50	55	60
Commercial	10 p.m. – 7 a.m.	60		
	7 a.m. – 10 p.m.	65		
Industrial (including wineries)	Anytime	75		

SOURCE: Napa County, 2008.

Construction activities are exempt from standards set forth in **Table 3.9-5** above, however the Napa County Code requires that when technically and economically feasible, construction activities shall be conducted in such a manner that they do not exceed the noise levels listed in **Table 3.9-6** below. Aside from the limits outlined in the table, construction activities and use of construction equipment is generally prohibited between the hours of 7 p.m. and 7 a.m.

TABLE 3.9-6
NAPA COUNTY NOISE LIMITS FOR CONSTRUCTION ACTIVITIES

Time	Residential	Commercial	Industrial
Daily: 7 a.m. to 7 p.m.	75 dBA	80 dBA	85 dBA
Daily 7 p.m. to 7 a.m.	60 dBA	65 dBA	70 dBA

SOURCE: Napa County, 2008.

APPENDIX 3.10
Hazards and Hazardous Materials

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to hazardous materials and the proposed project.

LGVSD

City of San Rafael

The City of San Rafael General Plan 2020 (2003) establishes the following policies and implementation actions regarding hazards and hazardous materials that are applicable to the proposed project:

> *Policy S-10. Location of Public Improvements*: To minimize threat to human health or any extraordinary construction and monitoring expenses, avoid locating improvements and utilities in areas with dangerous levels of identified hazardous materials. When the location of public improvements and utilities in such areas cannot feasibly be avoided, effective mitigation measures will be implemented.
>
> *Policy S-12. Use of Environmental Databases in Development Review*: Review the San Rafael Fire Department's database of contaminated sites at the time a development is proposed. Undertake appropriate studies to assure identification and implementation of mitigation measures for sites on or near identified hazards.
>
> - *Action S-12a. Environmental Database*: Maintain environmental and hazardous materials-related databases, and update information on an ongoing basis. In addition, include the information in the state GeoTracker database (database of contaminated UST sites).
> - *Action S-12b. Environmental History*: Through the environmental review process, provide information concerning available environmental history of a site and proposed mitigation measures if warranted.
>
> *Policy S-13. Potential Hazardous Soils Conditions*: Where development is proposed on sites with known previous contamination, sites filled prior to 1974 or sites that were historically auto service, industrial or other land uses that may have involved hazardous materials, evaluate such sites for the presence of toxic or hazardous materials. The requirements for site-specific investigation are contained in the Geotechnical Review Matrix.

- *Action S-13b. Hazardous Soils Cleanup*: Require remediation and cleanup in accordance with regional and local standards prior to developing sites with impacted soil or groundwater. The required level of remediation and clean-up shall be determined by the Fire Department based on the intended use of the site and health risk to the public.

- *Action S-13c. Local Implementing Agency*: As the Local Implementing Agency (LIA) for the San Francisco Bay RWQCB, the Hazardous Materials Division shall oversee the investigation and closure of contaminated underground storage tank sites.

Policy S-14. Hazardous Materials Storage, Use, and Disposal: Enforce regulations regarding proper storage, use and disposal of hazardous materials to prevent leakage, potential explosions, fires, or the escape of harmful gases, and to prevent individually innocuous materials from combining to form hazardous substances, especially at the time of disposal.

- *Action S-14a. CUPA Program*: Continue to participate in the CUPA program.

Policy S-15. Hazardous Waste Management: Support measures to responsibly manage hazardous waste consistent with protection of the public health, welfare, safety and the environment. The City of San Rafael supports the Marin County Hazardous Waste Management Plan as adopted by the State, County and Cities within Marin County.

Policy S-16. Transportation of Hazardous Materials: Enforce federal, state and local requirements and standards regarding the transportation of hazardous materials. Support, as appropriate, legislation that strengthens safety requirements for the transportation of hazardous materials.

- *Action S-16a. Safe Transport of Hazardous Materials*: Support California Highway Patrol's efforts to ensure the safe transport of hazardous materials.

Policy S-31. New Development in Fire Hazard Areas: Design new development located on or adjacent to natural hillsides to minimize fire hazards to life and property.

- *S-31a. New Development*. Through the development review process, require appropriate mitigation measures such as fire preventive site design, landscaping and building materials, and the use of fire suppression techniques such as sprinklering.

Unincorporated Marin County

The Marin Countywide Plan (2007) sets forth the following goals, policies, and implementing programs regarding hazards and hazardous materials that are applicable to the proposed project:

Goal PS-4: Decreased Exposure to Hazardous Materials. Reduce the risks to human and environmental health from hazardous materials.

- *Policy PS-4.1: Regulate and Reduce Hazardous Material Use*. Control the use and storage of hazardous materials to minimize their presence in, and potential dangers to, the community and environment.

- *Implementing Program PS-4.a: Regulate Development Near Waste Sites*. Adopt specific regulations for development of land on or adjacent to a known solid or hazardous waste site.

- *Implementing Program PS-4.b: Regulate Hazardous Material Use*. Identify businesses that use, store, dispose of, or transport hazardous materials, and require them to follow measures that protect public health and safety.

- *Implementing Program PS-4.c: Restrict Transport.* Work with federal and state agencies to require all transport of hazardous materials to follow approved routes.

- *Implementing Program PS-4.d: Prepare for Hazardous Materials Incidents*. Plan for response to an emergency involving a major release of hazardous materials.

- *Implementing Program PS-4.e: Precautionary Principle*. Continue to implement the precautionary principle in County purchases and actions, which calls for a careful analysis and selection of the available alternatives presenting the least potential threat to human health and natural systems.

- *Implementing Program PS-4.f: Reduce Hazardous Materials on County Property*. Develop and implement a policy to reduce the use of hazardous materials in County buildings, on County property, and in County operations.

Goal EH-4: Safety from Fires. Protect people and property from hazards associated with wildland and structural fires.

- *Policy EH-4.1: Limit Risks to Structures*. Ensure that adequate fire protection is provided in new development and when modifications are made to existing structures.

- *Policy EH-4.3: Adopt and Implement a Fire Management Plan*. Develop a proactive approach to manage wildfire losses by identifying hazard risks and enacting effective mitigation strategies.

- *Policy EH-4.5: Regulate Land Uses to Protect from Wildland Fires*. Use land use regulations, including but not limited to subdivision approvals and denials, as means of protecting people and property from hazards associated with wildland fires.

  - *Implementing Program EH-4.c: Require Compliance with Fire Department Conditions*. Continue to refer land development and building permit applications to the County Fire Department or local fire district for review, and incorporate their recommendations as conditions of approval as necessary to ensure public safety. Continue to require compliance with all provisions of the most recently adopted version of the California Fire Code (with local amendments).

  - *Implementing Program EH-4.d: Review Applications for Fire Safety*. Require applicants to identify defensible space and compliance with fire safety standards, and continue to work with local and State fire agencies to ensure that California Fire Code (with local amendments), County Development Code, and State standards for construction are applied uniformly countywide.

- *Implementing Program EH-4.e: Require Sprinkler Systems*. Continue to require installation of automatic fire sprinkler systems in all new structures and existing structures undergoing substantial remodeling, and provide incentives for sprinkler installation in all other habitable structures, especially those in high fire hazard areas.

- *Implementing Program EH-4.f: Require Fire-Resistant Roofing and Building Materials*. Continue to require and provide incentives for Class A fire-resistant roofing for any new roof or replacement of more than 50 percent of an existing roof. Work with Marin County fire departments to prepare and adopt an ordinance requiring fire-resistant building materials in extreme and high fire hazard areas.

- *Implementing Program EH-4.h: Require Adequate Clearance*. Require standards for clearance of vegetation on vacant lots, and around structures, and landscaped areas to ensure timely and adequate removal of potential fire fuel on both public and private property.

- *Implementing Program EH-4.k: Adopt Amended Urban Wildlands Interface Regulations*. Work with Marin fire departments to prepare and adopt urban wildlands interface regulations for new development and substantial remodels in order to reduce fire hazards in high and extreme fire hazard areas.

- *Implementing Program EH-4.o: Support a Fire Management Plan*. Adopt a resolution supporting a Fire Management Plan (including a fuel break plan), and encourage Marin cities and towns to also support its recommendations.

Novato SD

City of Novato

The City of Novato General Plan (1996, and amendments), lists the following objectives, policies, and programs with regard to hazards and hazardous materials that are applicable to the proposed project:

SF Objective 8: Reduce hazards of transportation, storage and disposal of hazardous wastes and hazardous materials.

- *SF Policy 28. Measures to Reduce Hazards*: Consider measures to protect the public health from the hazards associated with the transportation, storage and disposal of hazardous wastes.

  - *SF Program 28.1*: Continue to refer land use and transportation decisions and other programs involving hazardous materials regulations to the appropriate agencies.

  - *SF Program 28.3*: Consider adoption of a Hazardous Materials and Waste Ordinance that defines hazardous waste and hazardous materials and facilitates implementation of State and County regulations and programs regarding hazardous substances.

- *SF Program 28.4*: Continue to implement the Commercial Occupancy Ordinance requiring notification of all hazardous substances that are transported, stored, treated or could be released accidentally into the environment.

- *SF Policy 30. Hazardous Materials Storage*: Strictly regulate the storage of hazardous materials.

  - *SF Program 30.1*: Regulate and enforce the storage of hazardous materials under California Administrative Code Title 19 requirements.

  - *SF Program 30.2*: Revise the Zoning Ordinance to require secondary containment facilities and a buffer zone adequate to protect public health and safety on properties with hazardous materials storage and/or processing activities. This program requires industries and businesses, which store or process hazardous materials to provide secondary containment facilities and a buffer zone between the installation and property boundaries sufficient to protect the public health and safety.

- *SF Policy 31. Truck Routes for Hazardous Materials Transport*: Develop, in cooperation with the County and neighboring cities, regulations prohibiting through-transport of hazardous materials by truck on the local street systems and requiring that this activity be limited to state highways.

  - *SF Program 31.1*: Consider adopting a Local Hazardous Material Route Plan and install signage and publicize routes for hazardous materials transport in Novato. Adopt an ordinance designating specific routes for transport of hazardous materials.

SF Objective 5: Reduce Fire Hazards.

- *SF Policy 16. Fire Risk in New Development*: Review all development proposals for fire risk, and require mitigation measures to reduce the probability of fire.

  - *SF Program 16.1*: Continue the Novato Fire Protection District's review of all development proposals to reduce fire risk.

  - *SF Program 16.2*: Require new development within mapped high fire hazard zones established by the Novato Fire Protection District and/or the Marin County Fire District to develop and implement a Vegetation Management Plan. The Plan shall be part of the development application and approved by the Novato Fire Protection District and the City. The Plan shall be developed by an arborist or vegetation management specialist. The City shall work with the Fire District to ensure that actions recommended in the Plan are implemented. The Novato Fire Protection District has the right to review properties to judge whether actions recommended in the Vegetation Management Plan are being properly implemented in a timely fashion.

  - *SF Program 16.4*: Assess development applications on sites beyond a five-minute response time from a fire station to ensure that acceptable mitigation measures are provided.

- *SF Program 16.5*: Continue to enforce the Fire Safety Ordinance requiring sprinkler systems for all new commercial/industrial development greater than 2,500 square feet and all new residential development regardless of size.

- *SF Program 16.6*: Limit building envelopes in high fire risk areas to provide for "defensible space" against fires.

- *SF Policy 17. Level of Fire Protection*: Work with Novato Fire Protection District to help ensure a continued high level of fire protection.

  - *SF Program 17.1*: Continue to require all new development to meet the adopted fire safe regulations originally developed by the state and currently adopted as an appendix to the Fire Code.

- *SF Policy 18. Vegetation Management*: Continue to implement an effective and environmentally sound vegetation management and weed abatement program.

  - *SF Program 18.1*: Continue to require the use of the following methods of weed abatement wherever possible: use of mechanical rather than chemical removal of weeds; reseeding with native bunchgrass varieties in sloping disturbed soils; and limiting weed abatement activities in areas with known endangered plant and animal species. Strongly encourage a zone system of landscaping, as per Fire District standards, for defensible space around buildings in high fire risk areas.

- *SF Policy 19. State Building Code*: Continue to enforce the State Building Code (Uniform Building Code).

  - *SF Program 19.1*: Continue to update and enforce the City's Building Code and Fire Code provisions.

  - *SF Program 19.2*: Continue to require a greater degree of fire resistance in roof coverings and exterior building materials for structures within or adjacent to hazardous areas than what is specified in the UFC, as determined by the Chief Building Official upon making of findings specified in Health and Safety Code § 13143.4.

- *SF Policy 20. Peak Load Water Supply*: Work with the North Marin Water District and the Novato Fire Protection District to ensure that sufficient water flow exists in fire hydrants throughout Novato, based on peak demand.

  - *SF Program 20.1*: Continue to require that all new developments be provided with sufficient fire flow facilities at the time of permit issuance.

Unincorporated Marin County

The Marin Countywide Plan, which is applicable to the Novato SD service area, is discussed under the LGVSD service area above.

SVCSD

City of Sonoma

The City of Sonoma 2006-2020 General Plan Update (2006) sets forth the following goals, policies, and implementation measures with respect to hazardous materials and wildland fires:

Goal PS-1: Minimize risks to life and property associated with seismic and other geologic hazards, fire, hazardous materials, and flooding.

- *Policy 1.3*: Ensure that all development projects provide adequate fire protection.
  - *Implementation Measure 1.3.1*: Review all proposed projects for adequacy of fire protection, including: response time; emergency access, water supply, and fire flow; vegetation clearance and visible addressing; spacing between buildings; construction materials; and refuse removal.
- *Policy 1.4*: Coordinate and maximize emergency medical service and firefighting capabilities in the city and Sonoma Valley.
  - *Implementation Measure 1.4.3*: Work with Schell-Vista Fire District to monitor fire safety and hazardous material use, storage, and transport in the Eighth Street East area.
- *Policy 1.6*: Ensure that all operations that use, store, and/or transport hazardous materials to comply with all applicable regulations.
  - *Implementation Measure 1.6.1*: Maintain contingency plans for responding to spills, accidents, and fires involving hazardous materials.
  - *Implementation Measure 1.6.2*: Provide information to assist businesses in complying with regulations regarding use, storage, and transport of hazardous materials.

Sonoma County

The Sonoma County Draft General Plan Update 2020 (Sonoma County, 2008) establishes the following goals, objectives, and policies with respect to hazards and hazardous materials that are applicable to the proposed project:

Goal PS-4.1: Prevent unnecessary exposure to people and property to risks of damage or injury from hazardous materials.

- *Objective PS-4.2*: Regulate the transport, storage, use, and disposal of hazardous materials in order to reduce the risks of damage and injury from hazardous materials to acceptable levels.
  - *Policy PS-4a*: While maintaining the autonomy granted to it pursuant to state zoning laws, implement state and county requirements for the storage, transport, disposal, and use of hazardous materials, including requirements for management plans, security precautions, and contingency plans.

- *Policy PS-4c*: Require a use permit for any commercial or industrial use involving significant quantities of hazardous materials. Hazardous materials management plans shall be required as a condition of approval of such permits.

- *Policy PS-4d*: Where allowed by law, regulate the transportation of hazardous materials to minimize the potential for damage. Seek regulation by other agencies consistent with adopted County policies.

- *Policy PS-4g*: Prepare a draft "Hazardous Materials Management Plan," which provides for the long-term prevention of releases of hazardous materials, effective responses to such releases, the safe transport and disposal of hazardous wastes, and a public information program.

Goal PS-3: Prevent unnecessary exposure of people and property to risks of damage or injury from wildland and structural fires.

- *Objective PS-3.1*: Continue to utilize complete data on wildland and urban fire hazards.

- *Objective PS-3.2*: Regulate new development to reduce the risks of damage and injury from known fire hazards to acceptable levels.

  - *Policy PS-3a*: Continue to utilize available information on wildland and structural fire hazards.

  - *Policy PS-3b*: Consider the severity of natural fire hazards, potential damage from wildland and structural fires, adequacy of fire protection and mitigation measures consistent with this element in the review of projects.

  - *Policy PS-3c*: Continue to adopt revisions to the Uniform Fire and Building Code and other standards which address fire safety as they are approved by inspection organizations and the State of California. Review, revise, and/or adopt existing or new local codes, ordinances, and Fire Safe Standards to reflect contemporary fire safe practices.

  - *Policy PS-3d*: Require on-site detection and suppression, including automatic sprinkler systems, where available services do not provide acceptable levels of protection.

  - *Policy PS-3e*: Refer projects and code revisions to the Department of Emergency Services and responsible fire protection agencies for their review and comment.

  - *Policy PS-3g*: Encourage strong enforcement of state requirements for fire safety by the California Department of Forestry.

  - *Policy PS-3l*: Work with the California Department of Forestry and Fire Protection to identify areas of high fire fuel loads and opportunities to reduce those fuel loads in "areas with very high or high potential for large wildland fires" and High Fire Hazard Severity Zones.

Napa SD

City of Napa

The City of Napa General Plan (2006) establishes the following goal and policies with respect to hazards and hazardous materials that are applicable to the proposed project:

Goal HS-7: To reduce the risks to health and safety from hazardous wastes.

- *Policy HS-7.1*: The City shall reevaluate, modify if necessary, and implement changes to the short-term goals of the *Household Hazardous Wastes Element.*
- *Policy HS-7.2*: The City shall support the County's proposed *Integrated Waste Management Plan*.
- *Policy HS-7.3*: The City shall support the County's role as CUPA for all County jurisdictions.

Goal HS-5: To reduce the risk to life and property from wildland fires.

- *Policy HS-5.1*: The City shall require that development in high fire hazard areas provide adequate access roads, onsite fire protection systems, signage, flame-retardant building materials, and fire breaks.
- *Policy HS-5.2*: The City shall continue to implement the Uniform Fire Code as the City's basic regulations for fire prevention and suppression.
- *Policy HS 5-3*: The City shall continue to implement the Hazardous Fire Areas Fire Protection Standard in the city's wildland/urban intermix areas in order to reduce the risk from wildland fires.

Napa County

The Napa County General Plan Update (2007) includes the following goal and action item regarding hazardous materials applicable to the proposed project:

Goal SAF-5: All development projects proposed on sites that are suspected or known to be contaminated by hazardous materials and/or are identified in a hazardous material/waste search shall be reviewed, tested, and remediated for potential hazardous materials in accordance with all local, state, and federal regulations.

- *Action Item SAF-31.1*: The County shall require written confirmation from applicable local, regional, state, and federal agencies that known contaminated sites have been deemed remediated to a level appropriate for proposed land uses, prior to the County approving site development or require an approved remediation plan that demonstrates how contamination will be remediated prior to site occupancy. This documentation will specify the extent of development allowed on the remediated site as well as any special conditions and/or restrictions on future land uses.

Goal SAF-3: Effectively manage forest and watersheds, and protect homes and businesses from fire and wildfire and minimize potential losses of life and property.

- *Policy SAF-15*: The County shall coordinate with the State Department of Forestry and Fire Protection and fire agencies in neighboring counties to plan for future fire prevention and suppression needs.

- *Policy SAF-16*: Consistent with building and fire codes, development in high wildland fire hazard areas shall be designed to minimize hazards to life and property.

  - *Action Item SAF-16.1*: Develop site criteria and construction standards for development in high fire hazard areas, and adopt standards to restrict urban development (as defined in the Land Use Element) in high wildland fire hazard areas unless adequate fire services are provided.

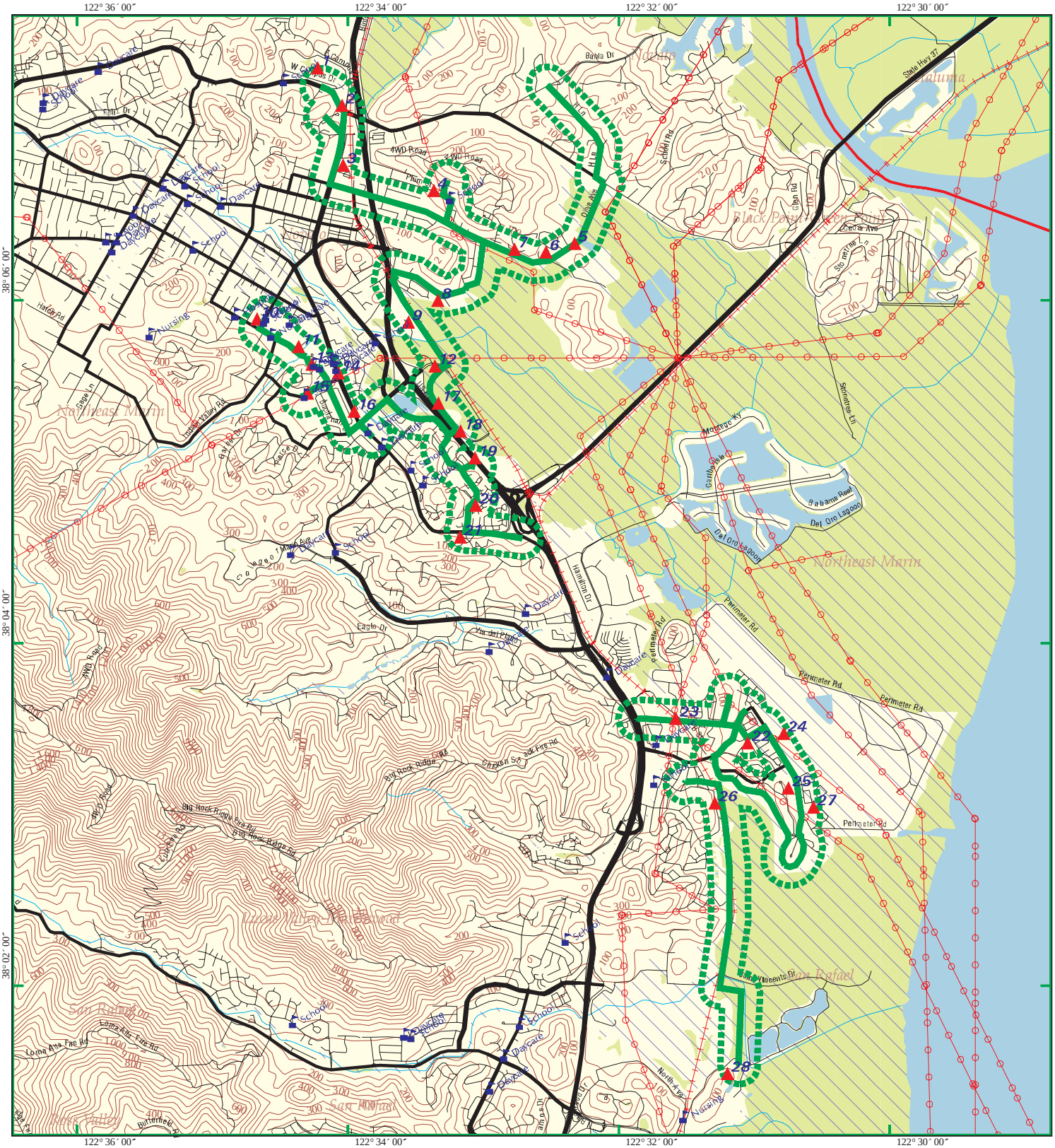
- *Policy SAF-17*: The County supports the use of prescribed fuel management programs, including prescribed burns and brush clearing, for managing fire hazardous areas; to reduce wildfire hazard, improve watershed capabilities, promote wildlife habitat diversification, and improve grazing.

- *Policy SAF-20*: All new development shall comply with established fire safety standards. Design plans shall be referred to the appropriate fire agency for review of the following:

  1) Adequacy of water supply.
  2) Site design for fire department access in and around structures.
  3) Ability for a safe and efficient fire department response.
  4) Traffic flow and ingress/egress for residents and emergency vehicles.
  5) Site-specific built-in fire protection.

APPENDIX 3.10A

EDR Data Base Maps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Lucas Valley Road
San Rafael
Loma Alta Fire Rd
Butterfield Rd
Novato
Nursing
School
Daycare
4WD Road
Plum
Olive Ave
Schelle Rd
Stonetree Ln
Cedar Ave
Glen Rd
State Hwy 37
Bahia Dr
Kelly Dr
Hartle Rd
Sage Ln
Indian Valley Rd
Big Rock Dr
Via del Pinto
Montego Key
Granada Ave
Bahama Reef
Del Ord Lagoon
Perimeter Rd
Perimeter Rd
Perimeter Rd
Perimeter Rd
Green Spring Fire Rd
Big Rock Ridge Fire Rd
Big Rock Ridge Fire Rd
Lucas Valley Road
Loma Alta Fire Rd
Butterfield Rd
Oak Rd
Lamp Ln
St Vincents Dr
North Ave
Novato
Ignacio
Hwy
Hill Ln
Olive Ave
Schelle Rd
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Montego Key
Perimeter Rd
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Bahia Dr
Kelly Dr
Hartle Rd
Sage Ln
Indian Valley Rd
Big Rock Dr
Via del Pinto
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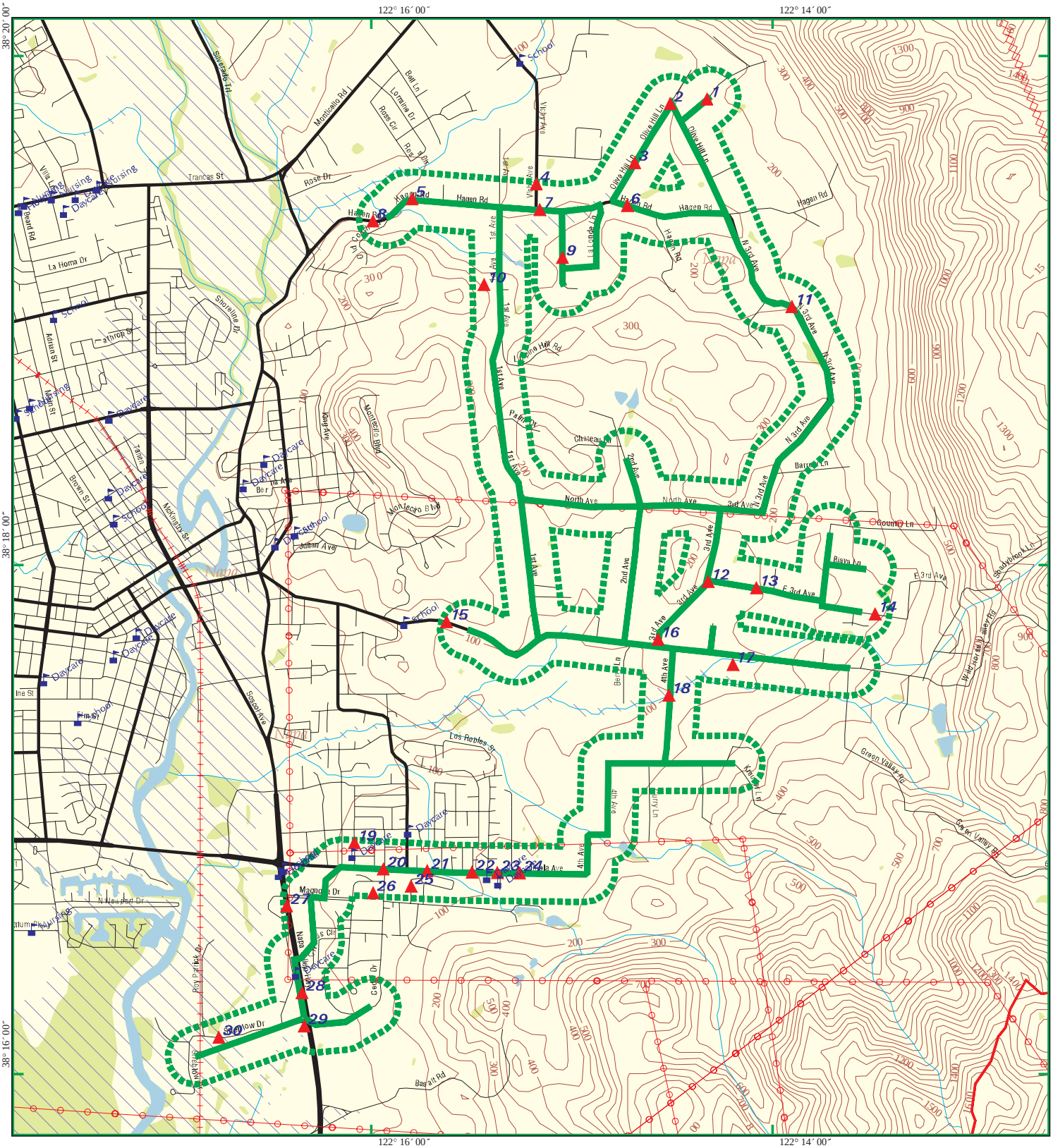
Big Rock Ridge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Monticello Rd
Shoreline Dr
La Horna Dr
Napa
Los Robles Dr
Green Valley Rd
Magnolia Dr
Bagalt Rd
Kelly Ln
Kelly Ln
Stockyard Ln
Gourmet Ln
Riata Ln
Barrow Ln
Chateau Ln
Park Dr
Vista Hill Rd
Valley View Rd
Wild Horse Valley Rd
Napa Valley Vintners
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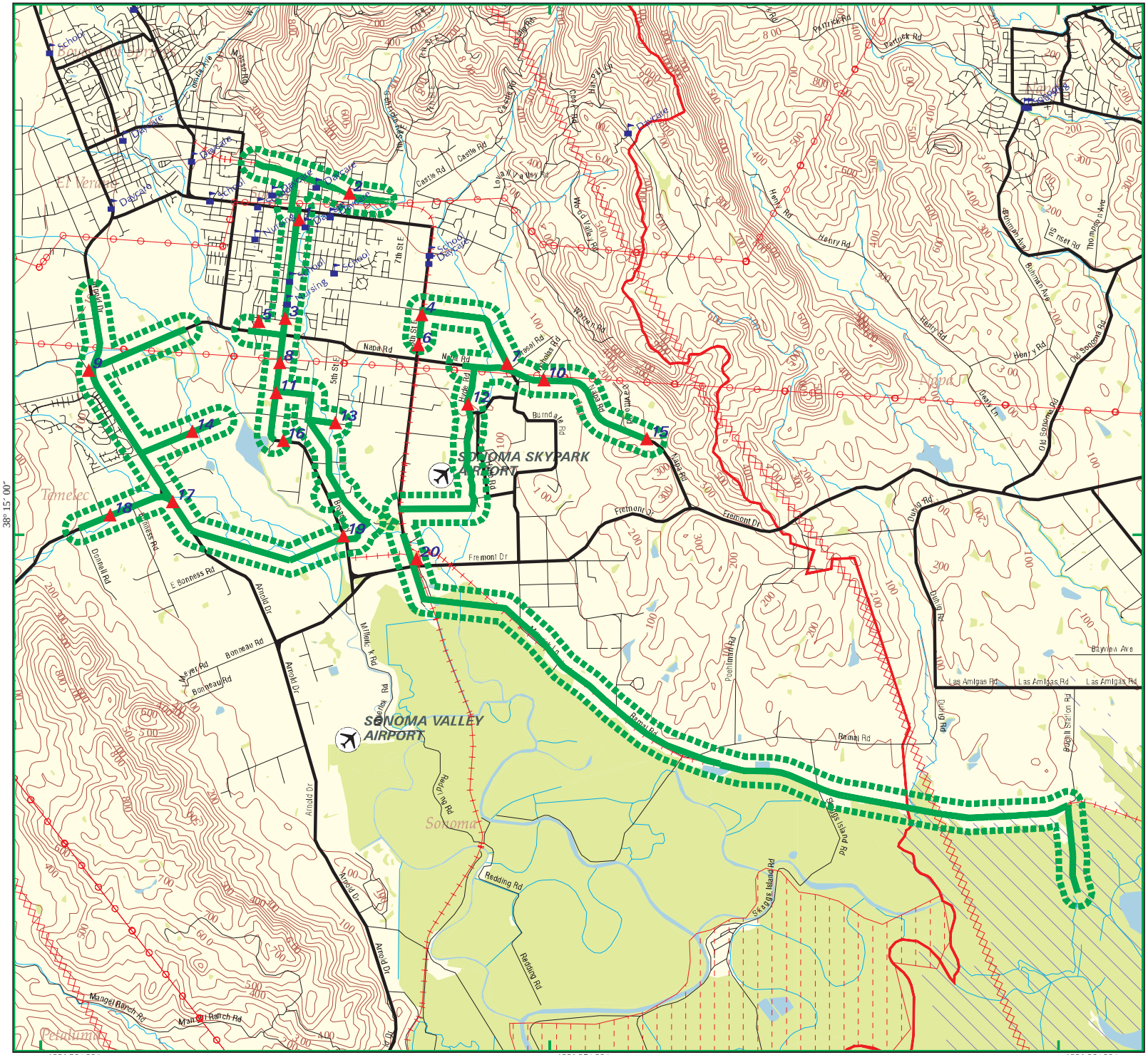
Napa Valley Opera House
Napa Valley Museum
Napa Valley Marriott
Napa Valley Bottleworks
Napa Valley Expo
Napa Valley Mall
Napa Valley Wine Train



Sonoma Valley Recycled Water

- Listed Sites
- Earthquake Epicenters (Richter 5 or greater)
- Search Boundary
- Roads
- Major Roads
- Waterways
- Railroads
- Contour Lines
- Pipelines
- Powerlines
- Fault Lines
- Water
- Superfund Sites
- Federal DOD Sites
- Indian Reservations BIA
- 100-Yr Flood Zones
- National Wetland Inventory

N

Sonoma, CA

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Scale in Miles

EDR® Environmental Data Resources Inc

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APPENDIX 3.11
Public Services and Utilities

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to public services and utilities and the proposed project.

LGVSD

City of San Rafael

The City of San Rafael General Plan contains policies that are applicable to the proposed project as it relates to public services.

> *Policy S-15.* Hazardous Waste Management. Support measures to responsibly manage hazardous waste consistent with protection of the public health, welfare, safety and the environment. The City of San Rafael supports the Marin County Hazardous Waste Management Plan as adopted by the State, County and Cities within Marin County.
>
> *Policy S-26*. Fire and Police Services. Maintain adequate cost-effective fire protection, paramedic and police services. Minimize increases in service needs from new development through continued fire prevention and community policing programs.
>
> *Policy I-10*. Sewer Facilities. Existing and future development needs should be coordinated with responsible districts and agencies to assure that facility expansion and/or improvement meets Federal and State standards and occurs in a timely fashion.
>
> *Policy I-13*. Wastewater Treatment and Reuse. Encourage additional water recycling at Las Gallinas Valley Sanitary District and encourage the Central Marin Sanitation Agency to investigate recycling and reuse of its treated wastewater.
>
> *Policy CON-20*. Water Conservation. Encourage water-conserving practices in businesses, homes and institutions and increase the use of recycled water.
>
> *Policy CON-20b.* Water Recycling. Support the extension of recycled water distribution infrastructure. Require the use of recycled water where available.

Unincorporated Marin County

The Marin Countywide Plan establishes governs public services in the unincorporated areas of Marin County. The following policies are relevant to the proposed project:

Policy PFS-1.4: Reduce Demand on Public Facilities. Reduce per capita and total demand for water and wastewater treatment, and enhance storm water management through integrated and cost-effective design, technology, and demand reduction standards for new development and redevelopment.

Policy PFS-2.1: Conserve Water and Utilize Sustainable Sources. Promote conservation to increase the responsible use and reliability of water supplies. Reduce the waste of potable water through efficient technologies, design, and management practices, and through better matching of the source and quality of water to the user's needs.

Policy PFS-4.2: Protect Environmental Health. Require the use of waste processing and disposal techniques that prevent the contamination or other impairment of natural resources.

Policy PFS-4.3: Plan for Waste Transformation or Disposal. Plan for the transformation or elimination of waste materials that cannot be reduced, recycled, or composted.

Policy PS-3.1: Plan Thoroughly for Emergencies. Ensure that the County, its citizens, businesses, and services are prepared for effective response and recovery in the event of emergencies or disasters.

Policy PS-3.2: Safe Public Structures. Protect public health and safety through appropriate siting and rehabilitation of public facilities.

Policy PS-4.1: Regulate and Reduce Hazardous Material Use. Control the use and storage of hazardous materials to minimize their presence in, and potential dangers to, the community and environment.

Novato SD

City of Novato

The City of Novato General Plan contains policies that are applicable to the proposed project as it relates to public services.

SF Policy 14 Emergency Facilities. Identify essential emergency facilities and ensure that they will function in the event of a disaster.

SF Program 14.3: Continue to maintain an emergency evacuation routes system. Consider establishing evacuation route standards, such as road widths.

SF Policy 17 Level of Fire Protection. Work with Novato Fire Protection District to help ensure a continued high level of fire protection.

SF Program 17.4: Require adequate access for emergency vehicles, adequate street width and vertical clearance, and parking restrictions for new development. All development that includes private access roads or fire roads shall provide access rights and keys to any gates to the Novato Fire Protection District and shall be deeded accordingly. (Draft EIR, pages 203-204, Impact 4.11A)

SF Policy 20 Peak Load Water Supply. Work with the North Marin Water District and the Novato Fire Protection District to ensure that there exists sufficient water flow in fire hydrants throughout Novato, based on peak demand.

SF Policy 26 Level of Emergency Medical Response. Encourage the Novato Fire Protection District to continue maintaining a high level of emergency medical response.

PF Policy 4 Management of Public Services. Work with public service agencies to ensure that those agencies have the means to provide services required by Novato residents and businesses.

> *PF Program 4.1*: Work with the Novato Fire Protection District to ensure that the District can continue to provide adequate fire protection and emergency response. The Novato Fire Protection District maintains its own Level of Service standards to determine adequate protection and response.
>
> *PF Program 4.2*: Work with the Novato Sanitary District to ensure that wastewater is adequately collected, treated, and disposed of.
>
> *PF Program 4.8*: Work with solid and liquid wastewater agencies to ensure compatibility of nearby land uses with their facilities.

PF Policy 6 Water Conservation. Develop and implement water conservation programs for Novato.

> *PF Program 6.2*: Use treated wastewater for irrigation of City facilities and encourage wastewater irrigation at other public and private facilities, where practicable.
>
> *PF Program 6.4*: Consider developing a plan in conjunction with the Sanitary District and Water Districts to promote and maximize to the extent feasible the reuse of treated wastewater and consider enacting an ordinance to have developments provide wastewater distribution facilities in conformance with the Plan.

EN Policy 28 Energy Conservation. Consider land use patterns and policies that promote energy conservation.

The Land Use Chapter encourages mixed use projects in and near the Downtown and in neighborhood shopping centers. The Transportation Chapter contains policies and programs that encourage reductions in the use of single-occupant vehicles and encourage the use of bicycles and other travel modes that do not consume fossil fuels.

EN Policy 29 Energy Conservation Measures in Buildings. Reduce energy consumption by requiring structures to meet the energy conservation requirements stipulated in the State Building Code and State Title 24 regulations.

> *EN Program 29.1*: Adopt a program to encourage retrofitting of energy-saving features in existing structures by providing information, technical assistance, and other incentives.
>
> *EN Program 29.2*: Review, and if necessary revise, planning and regulatory documents to ensure if they adequately promote energy efficiency, make use of sustainable renewable resources, and protection of solar access.

EN Policy 30 Energy Efficiency in Public Programs. Assure energy efficiency in local government operations.

EN Program 30.1: Continue to conduct energy management studies to evaluate opportunities for energy savings and use of local renewable sources.

EN Program 30.2: Incorporate energy conservation measures in the design of capital improvement projects.

EN Program 30.3: Consider using electric, zero-emission vehicles or alternative fuel and alternate energy efficient building materials.

EN Policy 31 Development Review Process. Consider energy conservation in the development review process.

EN Program 31.1: Consider adopting a solar access ordinance that would require all development applications to be reviewed for potential energy conservation measures and design, including site orientation, building design and aesthetics and use of materials, landscaping and solar access.

EN Program 31.2: Make available to the public PG&E literature and other information on energy conservation and energy efficient design.

EN Program 31.3: Analyze energy consumption aspects of site design and service delivery, such as drive-up windows.

EN Program 31.4: Encourage use of alternative energy-efficient building materials.

Unincorporated Marin County

See LGVSD discussion above.

SVCSD

City of Sonoma General Plan

The City of Sonoma General Plan contains policies that are applicable to the proposed project as it relates to public services.

Policy PS-1.3. Ensure that all development projects provide adequate fire protection.

Policy PS-1.4. Coordinate and maximize emergency medical service and firefighting capabilities in the city and Sonoma Valley.

Sonoma County

The Public Facilities and Services Element of the Sonoma County General Plan (Sonoma County, 1998) includes the following goals and objectives for maintaining utilities:

Sewer Services

Goal PF-1: Assure that water supply and wastewater management facilities are adequate to meet projected needs and are provided in a manner that preserves riparian habitats, supports

water dependent resources, enhances recreational opportunities, and preserves and enhances water quality and the environment.

Objective PF-1.1: Plan for healthful water supplies and wastewater facilities adequate to serve the growth projected in the general plan.

Objective PF-1.2: Operate County water and wastewater facilities in compliance with applicable state and federal standards.

Objective PF-1.4: Manage groundwater resources in order to avoid withdrawals which exceed the replenishment of affected groundwater basins.

PF-1f: Use water effectively and reduce water and wastewater system demand by:

1) Requiring water conserving design and equipment in new construction,

2 Encouraging water conserving landscaping and other conservation measures.

3) Encouraging retrofitting with water conserving devices,

4) Designing wastewater systems to minimize inflow and infiltration to the extent economically feasible

PF-2a: Plan, design, and construct park and recreation, fire and emergency medical, public education, and solid waste services and public utilities in accordance with projected growth, except as provided in policy LU-4d on page 36.

PF-2b: Work with the cities to provide park and recreation, public education, fire and emergency medical, and solid waste services, and public utilities. Use proposed annexations, redevelopment agreements, revenue sharing agreements, and the CEQA process as tools to ensure that incorporated development pay its fair share toward provision of these services.

Napa SD

City of Napa

The City of Napa General Plan contains policies that are applicable to the proposed project as it relates to public services.

Policy CS-1.1. The City shall plan and build infrastructure improvements that will: (1) accommodate growth demands without lowering levels of service; (2) support central city revitalization efforts; and (3) provide aesthetic enhancements to the city's major gateways and scenic corridors

Policy CS-2.1. The City shall provide services and personnel necessary to maintain community order and public safety.

Policy CS-2.2.The City shall endeavor to maintain a police and fire force sufficiently staffed and deployed to sustain a five-minute maximum response time to any call involving an immediate danger of loss of life or serious injury (response time means from the time the call is received in dispatch to the time the first emergency unit is on the scene).

Policy CS-5.1. The City shall maintain adequate personnel and equipment necessary to provide fire suppression services for the City of Napa.

Policy CS-7.2. The City shall maintain personnel to sustain a maximum response time of five minutes to any call involving an immediate danger of loss of life as a result of a medical emergency.

Policy CS-9.5. The City shall evaluate the feasibility and pursue the efficient use of reclaimed wastewater in appropriate locations to offset the demand for potable water supplies.

Policy CS-10.1. The City shall promote reduced wastewater system demand through efficient water use by: a. Requiring water-conserving design and equipment in new construction; b. Encouraging retrofitting with water-- conserving devices

Policy CS-10.2. The City shall support continued efforts by the Napa Sanitation District to promote the use of reclaimed wastewater.

Napa County

The Napa County General Plan contains policies relevant to the proposed project as it relates to public services.

Policy SAF-4: Encourage intergovernmental and regional cooperation directed toward providing for a continuing high level of public services and coordination of services during a disaster.

Policy SAF-15: The County shall coordinate with CAL FIRE and fire agencies in neighboring counties to plan for future fire prevention and suppression needs.

Policy SAF-18: The County should set a good example and meet or exceed fire safety standards and defensible space requirements for all County buildings and roads.

3.2: Encourage construction, building maintenance, landscaping, and transportation practices that promote energy and water conservation and reduce green-house gas emissions.

3.2.1: Implement a sustainability program that includes quantified objectives, standards and incentives for green construction and assistance to local businesses and agricultural operations to institute green practices for construction and land, energy, and water conservation.

APPENDIX 3.12
Cultural Resources

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to the cultural resources and the proposed project.

LGVSD

City of San Rafael

The City of San Rafael General Plan establishes policies that are intended to preserve cultural and historical resources.

> *CA 13. Historic buildings and areas*: Preserve buildings and areas with special and recognized historic, architectural or aesthetic value including but not limited to those on the San Rafael Historical/Architectural Survey. New development and redevelopment should respect architecturally and historically significant buildings and areas.
>
> - *CA-13b. Preservation Ordinance*: Continue to implement the City's Historic Preservation Ordinance through the design review process. Update the City's Historic Preservation Ordinance and review the development application review procedures for the various classifications of buildings on the Historical Architecture Survey, including effective ways to review proposed changes to historic properties.
>
> - *CA-13c. Historic Preservation Advisory Committee*: Establish a technical advisory committee or contract with an architectural historian, to provide the Design Review Board and Planning Commission with advice in design matters and policies related to the preservation and/or modification of historic structures.
>
> *CA-14. Reuse of Historic Buildings*: Encourage the adaptation and reuse of historic buildings, in order to preserve the historic resources that are a part of San Rafael's heritage.
>
> - *CA-14c. Incentives*: Investigate the use of incentives such as transfer of development rights, easements, and property tax relief to encourage preservation of historic buildings.
>
> *CA-15. Protection of Archaeological Resources*: Recognize the importance of protecting significant archaeological resources by 1) identifying, when possible, archaeological resources and potential impacts on such resources; 2) providing information and direction to property owners in order to make them aware of these resources, and 3) implementing measures to preserve and protect archaeological resources.

- *CA-15a. Archeological Resources Ordinance*: Continue to implement the existing Archeological Resources Ordinance.

Unincorporated Marin County

The Marin Countywide Plan has identified the following goals, policies, and implementation measures relevant to historic resources.

Goal HAR-1. Historical Resource Protection: Identify and protect archaeological and historical resources as major contributors to quality of life and community vitality in Marin.

Policies

HAR-1.1 Preserve Historical Resources: Identify archaeological and historical resource sites.

HAR-1.3 Avoid Impacts to Historical Resources: Ensure that human activity avoids damaging cultural resources.

HAR-1.5 Regulate Alteration of Historical Buildings: Limit the ability to modify historical structures, and require development to respect the heritage, context, design, and scale of older structures and neighborhoods.

Implementation Measures

- *HAR-1.a Map Resource Areas*. Update the County sensitivity map (not site specific) that identifies potential locations of archaeological resources, and survey and evaluate existing archaeology resources every three years (while maintaining confidentiality regarding the location of archaeological sites). Consult with FIGR as appropriate in map updates.

- *HAR-1.d Require Archaeological Surveys for New Development*. Require archaeological surveys conducted on site by a State-qualified and FIGR recommended archaeologist for new development proposed in areas identified as potential resource locations on the County sensitivity map (see Program HAR-1.a).

- *HAR-1.f Involve Appropriate Authorities*. Refer development proposals on or near cultural resource sites to the California Archaeological Inventory, the Northwest Regional Office of the California Historical Resources Information System, and/or Native American representatives, as appropriate.

- *HAR-1.m Require Design Compatibility*. Require projects on sites with or adjacent to cultural resources to complement the appearance of those resources and provide adequate buffers to protect them from potential adverse impacts.

- *HAR 1.p Consultation Regarding Confidentiality of Important Sites*. If land designated or proposed to be designated as open space contains a historical resource (as defined in Public Resources Code section 21084.1), with cultural significance, the County shall conduct consultations with FIGR. The purpose of the process is to determine the level of confidentiality required to protect the cultural resource and to provide an appropriate level of dignity in any management plan.

Novato SD

City of Novato

The City of Novato General Plan specifies that "Novato's archaeological and historic resources should be preserved. They provide a link to the past and strengthen the City's sense of place and community identity" (Novato, Chapter XI –Community Identity). The applicable objectives, policies, and programs are presented below.

CI Objective 11: Preserve archaeological and historic resources. CEQA requires evaluation of any archaeological resource on the site of a development project. Unique resources, as defined by State law, should be protected, either by physical measures or by locating development away from the site.

CI Policy 30 Archaeological Resources Protection: Continue to protect archaeological resources.

- *CI Program 30.1*: Require that areas found to contain significant historic or prehistoric artifacts be examined by a qualified consulting archaeologist.
- *CI Program 30.2*: Require development applicants to research records for sites identified as having a potential for archaeological resources, to determine if a survey has been made and if resources have been identified. If there has been no survey, the City may require that the applicant conduct one.
- *CI Program 30.3*: Halt all work if archaeological resources are uncovered during construction, and require an evaluation by a qualified archaeologist prior to recommencing construction.
- *CI Program 30.4*: Locate and/or design development to avoid impacts on sites with identified archaeological resources by placing building to avoid the site, incorporating the site into a permanent open space area, covering the site with a layer of soil, deeding the site as a permanent conservation easement, or taking other actions recommended by the archaeologist, as approved by the City.
- *CI Program 30.5*: If site has potential for archeological considerations, institute measures to protect these resources.

CI Policy 31 Historic Buildings, Sites and Districts. Identify, recognize and protect sites, buildings, structures and districts with significant cultural, aesthetic and social characteristics which are part of Novato's heritage.

- *CI Program 31.1*: Adopt a Cultural Resources Management Ordinance to define, identify, evaluate, protect and preserve sites, buildings, structures, districts and objects that reflect significant elements of Novato's cultural, social, economic, political, aesthetic and architectural heritage use the Novato History Museum documents identifying 80 historic buildings and sites in Novato as a resource in developing the ordinance as well as the information regarding the existing historical districts.

Unincorporated Marin County

See LGVSD discussion above.

SVCSD

City of Sonoma

The following policy from the City of Sonoma General Plan is relevant to historic resources:

> *Policy 5.8*: Encourage the designation and preservation of local historic structures and landmarks, and protect cultural resources.
>
> - *Implementation Measure 5.8.2*: Refer development proposals to the California Archaeological Inventory at Sonoma State University to ensure that important archeological sites are identified and protected.

Sonoma County

The following goal and objectives from the Sonoma County General Plan are applicable to the proposed project as it relates to existing historic resources:

> **Goal OS-9:** Preserve significant archaeological and historical sites which represent the ethnic, cultural, and economic groups that have lived and worked in Sonoma County. Preserve unique or historically significant heritage or landmark trees.
>
> *Objective OS-9.2*: Encourage preservation of historic building or cemeteries by maintaining a Landmarks Commission to review projects which may affect historic structures or other cultural resources.
>
> *Objective OS-9.3*: Encourage preservation of archaeological resources by reviewing all development projects in archaeologically sensitive areas.
>
> *Objective OS-9.4*: Identify and preserve heritage and landmark trees.
>
> *Implementation Measures*
>
> - *OS-9a*: Designate the County Landmarks Commission to review projects within designated historic districts.
> - *OS-9f*: Refer applications for discretionary permits to the Northwest Information Center to determine if the project site might contain archaeological or historical resources. If a site is likely to have these resources, require a field survey and include mitigation measures if needed. Discourage paving over resources.
> - *OS-9g*: Use the Heritage or Landmark Tree Ordinance and the design review process to protect trees.

Napa SD

City of Napa

Goals and Policies intended to preserve historic resources are established in the City of Napa General Plan.

Goal HR-1: To preserve and maintain sites, buildings, and landscapes that serve as significant, visible reminders of the city's social, architectural, and agricultural history.

Policies

HR-1.4: The City shall review and strengthen its present legal framework and administrative procedures governing projects affecting historical resources.

Implementation Programs

- *HR-1.C*: The City shall develop a parcel-specific, computerized system to make historic inventory data available to each City department so that actions which might affect historic resources are evaluated appropriately and in a timely manner.

- *HR-1.E*: The City shall update the City's *Historic Preservation Ordinance* to reflect the requirements of the City's Certified Local Government status and current federal and state mandates and the policies of the General Plan.

Goal HR-2: To encourage owners of historic resources to preserve or upgrade historic properties by improving their economic viability.

Goal HR-5: To maintain historic neighborhoods that provide a diverse mix of housing types and services to meet the needs of families and build a sense of community.

Goal HR-6: To preserve important archaeological resources.

Policies

HR-6.1: The City shall enforce current federal and state and procedures for identifying, preserving and protecting prehistoric sites.

HR-6.2: The City shall require investigation during the planning process for all proposed developments in archaeologically sensitive areas in order to determine whether prehistoric resources may be affected by the project and, if so, require that appropriate mitigation measures be incorporated into the project design.

HR-6.3: Recognizing that Native American burials or archaeological artifacts may be encountered at unexpected locations, the City shall continue to enforce state mandates with its current mitigation requirement, applied to all development permits and tentative subdivision maps, that upon discovery of remains during construction, all activity will cease until qualified professional archaeological examination and reburial in an appropriate manner is accomplished.

Napa County

Historic and cultural resources are governed by the following policies established in the Napa County General Plan:

> *Policy CC-26*: Projects which follow the Secretary of the Interior's Standards for Preservation Projects shall be considered to have mitigated their impact on the historic resource.

- *Action Item CC-23.2*: Impose the following conditions on all discretionary projects in areas which do not have a significant potential for containing archaeological or paleontological resources: "The Planning Department shall be notified immediately if any prehistoric, archaeologic, or paleontologic artifact is uncovered during construction. All construction must stop and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action." • "All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed."

APPENDIX 3.13
Recreation

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to the recreational resources and the proposed project.

LGVSD

City of San Rafael General Plan

PR-1. Standards. Maintain, and where possible exceed, a recreation standard of three acres of park and recreation facilities per 1,000 residents.

> *PR-1a. Recreation standard*. Use the recreation standard when evaluating proposals for new parks. Consider the creation of neighborhood parks of less than three acres when it can be demonstrated that such a facility would satisfy an unmet neighborhood need, provide recreational value and be a sufficient size to support desired infrastructure.

P*R-7. Community Park Improvements*. Upgrade San Rafael's community parks to meet the recreational needs of the served population.

PR-8. Neighborhood Park Improvements. Upgrade San Rafael's neighborhood parks to meet the recreational needs of the served population.

> ***e. Peacock Gap Park*.** Update the Peacock Gap Park Master Plan as needed to improve trails and access to open space.

Marin Countywide Plan

Goal PK-1: A High-Quality Parks and Recreation System. Provide park and recreation facilities and programs to meet the various needs of all county residents

PK-1.c Support Local Agencies. Support park and recreation planning efforts by cities and towns, special districts, and other public agencies. Pursue assistance in formulating funding packages and obtaining funding; negotiate with school districts, developers, or other potential recreation providers for recreational opportunities.

Novato SD

City of Novato General Plan

PF Objective 2. Provide Community Facilities to Improve and Enhance Recreational and Cultural Opportunities.

PF Policy 3 Community Facilities. Continue efforts to provide various community facilities addressing recreational and cultural needs.

EN Objective 14. Provide an attractive and comprehensive system of parks and trails throughout the city to meet the recreational needs of the entire community.

EN Policy 44 Park and Recreation Facilities. Develop and maintain to the maximum extent possible given available resources a system of parks to meet the needs of Novato residents.

SVCSD

City of Sonoma General Plan

Goal CDE-6: Enhance Sonoma's "sense of place."

Policy 23: New development or redevelopment along Highway 12, including improvements in the right-of-way where appropriate, shall incorporate design features to improve pedestrian/bike access in conjunction with a consistent design theme.

Environmental Resources

Goal ERE-1: Acquire and protect important open space in and around Sonoma.

Goal ERE-4: Respond to the recreational needs of the community.

2.6 Preserve existing trees and plant new trees.

2.6.1. Develop amendments to the Tree Ordinance to further protect significant trees on private property.

2.6.2. Carry out the programs of the City Tree Planting Plan, including preserving existing trees through the Tree Ordinance and increasing canopy cover, streetscape trees, parking lot shading, and tree maintenance.

Goal ER-4: Respond to the recreational needs of the community. 4.2 Provide a minimum of 5 acres of open space and parkland per 1,000 city residents.

ER-4.2.1. Enforce the provisions of the Development Code to ensure that new development provides adequate and attractive public and private open space, while monitoring existing parkland maintenance needs.

Sonoma County General Plan

Objective OS-7.1: Provide for adequate parklands and trails primarily in locations that are convenient to urban areas to meet the outdoor recreation needs of the population, while not affecting agricultural uses.

OS-7g: Use the following guidelines to determine consistency of projects involving lands with abandoned railroad rights of way where reasonably related to the impacts of the project:

The project does not or will not preclude the use of the right-of-way for trails.

A width of 60 feet generally is reserved for trail purposes, unless the Regional Parks Department determines that a different width would be adequate.

An irrevocable offer of dedication for the right-of-way has been made to the County of Sonoma.

Napa SD

City of Napa General Plan

Goal PF1: To develop a system of well-maintained and fully improved local and citywide serving parks and recreation facilities which meet the needs of the residents of Napa.

PR-1.1: The City shall provide 12 acres of active and passive parkland per 1,000 residents. This total figure includes citywide, community, neighborhood, and other special park sites and recreational amenities incorporated into the public parks and recreational open space system.

PR-1.15: The City shall respect and plan for the protection of distinctive natural and historical resources and sensitive habitats within the parks and open space system through the use of appropriate site planning, design, and management strategies.

Goal PF 2: To provide an adequate and diverse source for developing and maintaining parks and recreational facilities.

Goal PF 3: To develop and maintain an open space and parks system which protects and reinforces the natural and historic character of the city and region, and which is consistent with conservation goals.

PR-3.11: The City shall address resource conservation in park development, operations and maintenance, especially with respect to water conservation.

PR-3.10: The City shall address conservation of sensitive natural and cultural resources in specific and detailed development and implementation plans for parks and trails; ensure compliance at all times with the California Environmental Quality Act (CEQA) and other regulatory requirements.

Napa County General Plan

Goal ROS-1: To ensure an extensive landscape of open spaces in which recreation, the protection of natural, cultural, and archaeological resources, agricultural production, and private property are mutually supportive and complementary.

Policy ROS-3: Recreational facilities and improvements on open space lands should be the minimum necessary to achieve recreation objectives and be limited in density, intensity,

need for public services, impacts on the natural environment, growth inducement, and impacts on neighboring properties.

Uses on open space lands shall respect the character of the surrounding area, require a minimum of public support services (such as paved roads, emergency services, or law enforcement); contain a minimum of paved surfaces, structures, natural landform alteration or other introduced or constructed features inconsistent with the environment; require minimal water usage, wildlife habitat removal and usage of herbicides and pesticides; be coordinated with neighbors in terms of integrated pest management procedures; and shall not contribute to the likelihood that additional nonagricultural uses of agricultural land will be proposed to support or be accessory to the continued existence of the recreational use.

APPENDIX 3.14
Aesthetics

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to the visual resources and the proposed project.

LGVSD

City of San Rafael

The City of San Rafael is characterized by scenic hills and valleys, the San Francisco Bay, the historic Downtown structures. The Mission San Rafael Arcangel, St. Rafael's Church, and many historic homes are notable structures that contribute a unique visual quality to the City. The identity of San Rafael is largely defined by visual aspects of the natural and built elements. Two major themes identified in the City of San Rafael General Plan address aesthetics and visual resources:

> **Improve the appearance of the neighborhoods** – San Rafael is a city of neighborhoods both residential and commercial, and new, attractive and graceful buildings that complement and enhance existing neighborhoods;
>
> **Treasure the open spaces** – Over the years, San Rafael residents have purchased and dedicated natural areas to save them as open space, resulting in surrounding hills that will remain natural backdrops to the community (City of San Rafael, 2020).

Following these themes, the Open Space Element and the Community Design Element of the City of San Rafael General Plan, 2020 (City of San Rafael, 2004??) govern the aesthetic resources of the city. These Elements address the qualities that form the City's larger visual character.

The City of San Rafael General Plan, Open Space Element goals that are related to scenic resources are as follows:

> **Goal 30-Protected Open Space:** It is the goal of San Rafael to preserve and protect open space and the natural environment for all to enjoy.
>
> - *OS-1. Open Space Preservation*. Preserve, through a variety of methods, the open space areas identified in the Inventory of Potential Open Space Sites (see Appendix I). Retain and protect open space areas that serve as delineators between neighborhoods and between adjacent communities, as wildlife habitat, and as visual assets for the community. Open space areas can also function as connections between

neighborhoods, for example with the creation of pathways in environmentally appropriate areas.

OS-1a. Open Space Inventory. Update the Inventory of Potential Open Space Sites. Identify and prioritize open space parcels for future protection. Maximize the use of available resources when assessing City involvement in securing open space by applying the following non-prioritized evaluation criteria:

b. Resource Areas and Aesthetics (visual backdrop or edge, unique site features, shorelines/ridgelines, wetlands, wildlife habitat including wildlife movement corridors and habitat for endangered species).

- *OS-6a. Utilities in Open Space*. Use zoning ordinance provisions and the design and environmental review processes to evaluate the location and design of public utilities.

It will be the responsibility of the Community Development Department to implement these goals through ongoing, long-term planning using resources like fees, staff time, and grants.

The City of San Rafael General Plan addresses visual resources in the Community Development Element. The Community Development Element consists of two mains sections: City Image and Design Quality, which provide direction regarding the preservation of views of hillsides and ridgelines, and provides design direction for future development. The Community Development Element identifies the need to enhance focal points like landmarks and areas of natural beauty, maintain boundary-marking gateways into the City, preserve views of San Rafael and San Pablo Bays, and improve the function and appearance of transportation corridors. The City of San Rafael General Plan, Community Development Element goals that are related to scenic resources are as follows:

Goal 7-A Beautiful City: It is the goal of the City of San Rafael to have its best natural and built features preserved and strengthened to enhance the attractiveness and livability of the City.

- *CD-1. City Image*. Reinforce the City's positive and distinctive image by recognizing the natural features of the City, protecting historic resources, and by strengthening the positive qualities of the City's focal points, gateways, corridors and neighborhoods.

- *CD-5. Views*. Respect and enhance to the greatest extent possible, views of the Bay and its islands, Bay wetlands, St. Raphael's church bell tower, Canalfront, marinas, Mt. Tamalpais, Marin Civic Center and hills and ridgelines from public streets, parks and publicly accessible pathways.

- *CD-5a. Views*. Improve access to and enhance views of the Canalfront. Develop a Canalfront design plan to address public access, view corridors and appropriate development standards for adjacent buildings.

- *CD-6. Hillsides and Bay*. Protect the visual identity of the hillsides and Bay by controlling development within hillside areas, providing setbacks from the Bay, and providing public access along the Bay edge.

- *CD-8.Gateways*. Provide and maintain distinctive gateways to identify City entryways.

  CD-8a. Gateways. Evaluate each of the gateways defined on the design element maps to determine what natural, architectural, signage or landscape treatments should further establish these locations as identifiable gateways within the City, and implement the desired improvements as part of the City's Capital Improvement program.

- *CD-9. Transportation Corridors*. To improve the function and appearance of corridors, recognize those shown on Exhibits 17 and 18 and define each corridor's contribution to the City based upon its land use and transportation function and how it is experienced by the public.

  CD-9a. Corridor Design Guidelines. Develop specific design guidelines for each corridor that address building massing, articulation of building facades, detailing, lighting, landscaping, street trees and other desired infrastructure and characteristics. Include appropriate zoning code provisions.

  CD-9b. Right-of-Way Landscaping. Encourage Caltrans to install and maintain landscaping along its right-of-ways.

- *CD-10a. Visual Compatibility*. Ensure that new structures are visually compatible with the neighborhood and encourage neighborhood gathering places. Guidelines may address screening of service functions, materials and detailing, screening of roof equipment, lighting, landscaping, outdoor café seating and pedestrian amenities.

Unincorporated Marin County

The Community Design Element of the Marin Countywide Plan (General Plan) governs the aesthetic resources within the county and defines goals, policies, and programs to address visual resource issues (Marin Countywide Plan, 2007). The Countywide Plan recognizes the need to protect visual resources, from both the natural and built environment, in order to define neighborhoods, towns, and regions. Visual qualities of buildings, streets, and views contribute to the look and feel of the region. The Countywide Plan incorporates environmental, economic, and equitable considerations when developing polices and implementing programs that address visual resources.

Goal DES-4: Protection of Scenic Resources. Minimize visual impacts of development and preserve vistas of important natural features.

- *Policy DES-4.:1 Preserve Visual Quality*. Protect scenic quality and views of the natural environment — including ridgelines and upland greenbelts, hillsides, water, and trees — from adverse impacts related to development.

  Program DES-4.a Protect Key Public Views. Work with community groups to identify, map, and protect important view corridors. Establish design standards for development in these areas as part of the design review requirements and individual community plans.

Program DES-4.b Minimize Visual Impacts of Public Facilities. Amend applicable codes and procedures to require appropriate placement, design, setbacks, and native landscaping of public facilities (including soundwalls, medians, retaining walls, power lines, and water tanks) to reduce visual impacts, and encourage local agencies to adopt similar standards.

Program DES-4.c Regulate Mass and Scale. Ensure that the mass and scale of new structures respect environmental site constraints and character of the surrounding neighborhood, are compatible with ridge protection policies, and avoid tree-cutting (especially on wooded hillsides) and grading wherever possible. Community plans should consider regulations concerning home size.

Program DES-4.d Protect Views of Ridgelines. Implement Development Code standards that require development proposed on or near visually prominent ridgelines (including in the Ridge and Upland Greenbelt Areas shown on Map 3-4) to be clustered below the ridgeline on the least visually prominent portion of the site. Expand the implementation of these standards by including in the Ridge and Upland Greenbelt Area those unmapped ridgelines identified as having countywide significance and rezoning Ridge and Upland Greenbelt lands to Planned District categories and adjacent buffer area to a transitional district.

Program DES-4.e Protect Views of Ridge and Upland Greenbelt Areas. Employ a variety of strategies to protect views of Ridge and Upland Greenbelt areas, including the following:

1. Identifying any unmapped ridgelines of countywide significance, both developed and undeveloped, and adjusting the Ridge and Upland Greenbelt Areas map as appropriate;

2. Amending the Development Code and County zoning maps to designate a suburban edge on all parcels contiguous to the City- Centered Corridor that abut the Ridge and Upland Greenbelt, and requiring that those parcels develop at rural densities with visually sensitive site design;

3. Rezoning Ridge and Upland Greenbelt lands to the Planned District category and adjacent buffer areas to a transitional district, thereby subjecting them to County Design Review Requirements that include hillside protection;

4. Requiring buildings in Ridge and Upland Greenbelt areas to be screened from view by wooded areas, rock outcrops, or topographical features; and

5. Calculating density for Ridge and Upland Greenbelt subdivisions at the lowest end of the General Plan designation range.

6. DES-4.f Consider Participation in the California Scenic Highway Program. Consider participation in the Scenic Highway Program in order to preserve and enhance Marin’s scenic highway corridors.

7. Attractive and Functional Streets and Parking Areas. Design automobile use areas to fit the character of the community, and comfortably

accommodate travel by pedestrians and bicyclists, while still meeting health, safety, and emergency access needs (see Figure 3-8).

- *Policy DES-5.1 Achieve Streetscape Compatibility*. Ensure that roadways, parking areas, and pedestrian and bike movement are functionally and aesthetically appropriate to the areas they serve.

The Marin Countywide Plan also recognizes the importance of the historical and agricultural legacies of the St. Vincent's and Silveira area, which consists of approximately 1,110 acres east of Highway 101 in the unincorporated area of the County between the cities of San Rafael and Novato. Two properties: the 770-acre Catholic Youth Organization/St. Vincent's School for Boys and the 340-acre Silveira Family ranch are important land uses in the county. The school building is a California historical landmark and is partly visible from Highway 101. Each property represents a distinct legacy in the history of Marin County (Countywide Plan, 2007). The level of development in this area is limited under the 1973 Marin Countywide Plan, which included the St. Vincent's and Silveira lands within the eastern City-Centered Corridor as an urban reserve area. If this area is annexed into the City of San Rafael, the City could increase development rates. According to the 2007 Marin Countywide Plan, the 1994 Marin Countywide Plan "presumed annexation of these two parcels to, and development within, the City of San Rafael. In 2003 the City Council of San Rafael decided not to annex the properties and submitted a request to the Local Agency Formation Commission (LAFCO) to remove these lands from the City's Sphere of Influence. In June 2006, LAFCO removed the properties from San Rafael's sphere of influence. Since LAFCO approved this request from the City of San Rafael, these parcels remain in the unincorporated area of the County" (Marin Countywide Plan, 2007). This area is an integral part of the character of the region and holds special significance for Marin County for many reasons, particularly visual and aesthetic appearance of the buildings and surrounding area, and the area's importance as a physical and visual separator between the cities of Novato and San Rafael, and two policies have been defined in the Countywide Plan:

- *Policy SV-1.5 Protect the Silveira Corridor*. Protect the Silveira Corridor on the Silveira ranch to provide for scenic vistas and to retain the natural ecological connections among grasslands, valley oaks, the Miller Creek riparian corridor, and diked tideland habitats.

- *Policy SV-3.2 Protect Existing Views*. Development shall not negatively impact existing views of Pacheco Ridge, the Chapel, the bucolic setting, and the bay as seen from Highway 101. The properties shall continue to function as a visual buffer separating the cities of San Rafael and Novato.

Novato SD

City of Novato

The Community Identity Element governs the aesthetic resources of the City of Novato.

> **Goal: Retain and promote the small town character** of Novato including preservation of the historic features and landmarks.

- *CI Policy 9: Undergrounding Utilities*. Continue to require undergrounding of utilities.
- *CI Policy 10*. Provide for the proper placement, removal and replacement of above-ground utilities.
- *CI Program 10.1*. Work with utility companies to remove inactive or abandoned above ground utility lines and facilities.
- *CI Program 10.2*. Explore funding programs to facilitate the undergrounding of utilities in addition to current methods.
- *CI Program 10.3*. Consider amending the zoning ordinance to incorporate guidelines or regulations, to the extent feasible, regarding the aesthetics, proliferation and location of above ground utilities, appurtenance and antennas.

Other policies in the Community Identity Element encourage landscaping, variety in design and pattern, and also the development of entryways through the use of signs, street lighting, and street trees.

Unincorporated Marin County

See the Unincorporated Marin County discussion above for relevant plans and policies that apply to unincorporated areas surrounding the City of Novato. Novato is a member of the Marin Countywide Planning Agency, which consists of representatives of the 11 cities and the County. Based on Agency review, the Marin Countywide Plan, which designates land use and densities for the unincorporated areas adjacent to Novato: Bel Marin Keys, Black Point, North Novato, Indian Valley, Southwest Novato, and Loma Verde, is generally consistent with the policies developed under the City of Novato General Plan. Major discrepancies between the plans are associated with uses and densities around the undeveloped portion of Bel Marin Keys.

SVCSD

City of Sonoma

The Community Development Element's Development Code and the Environmental Resources Element in the *City of Napa General Plan: 2020* govern the aesthetics resources in the City. The Community Development Element describes development patterns and the visual character of the city and its neighborhoods, while the Environmental Resources Element identifies open space and hillsides, and establishes policies for protecting and enhancing these areas. There are two major objectives that address aesthetic resources in the Community Development Element:

- Establishing an attractive, thriving commercial area at the southern gateway to Sonoma; and
- Upgrading the appearance of the Sonoma Highway commercial corridor.

The Community Development Element establishes goals, policies, and programs to achieve these objectives through the Development Code. The Development Code contains standards and

provisions to conserve and protect the city's natural beauty, including scenic views, hillside open space, creeks, and trees, and ensure that new development is compatible with Sonoma's unique character and contributes to its quality of life, through:

Goal CD-5: Reinforce the historic, small-town characteristics that give Sonoma its unique sense of place.

- *Policy CD-5.3*. Protect important scenic vistas and natural resources, and incorporate significant views and natural features into project designs. (SEE MEASURE 4.1.1)
- *Policy CD-5.5*. Promote higher infill development, while ensuring that building mass, scale and form are compatible with neighborhood and town character.
- *Policy CD-5.6*. Pursue design consistency, improved pedestrian and bicycle access, and right-of-way beautification along the Highway 12 corridor.
- *Implementation Measure 5.6.2*. Extend right-of-way, landscaping, and streetscape improvements along Broadway and south of MacArthur Street
- *Policy CD-5.7*. Develop and implement design improvements that highlight the primary gateways to Sonoma.
- *Implementation Measure 5.7.1*. Install and upgrade landscaping, signs, monuments, and streetscape improvements to clearly mark Sonoma's gateways at : Four Corners, West Napa Street/ Sonoma Highway, Fifth Street East/ Napa Road, Fifth Street West/ Leveroni Road, and Sonoma Highway/ Verano Avenue.

The General Plan integrates different Elements to achieve the objectives. For example, in conjunction with the Community Development Element, the Circulation Element includes a policy that requires implementation of the historic grid system for new development, which will effectively shape the visual character of new construction, both commercial and residential, as well as its compatibility with existing development and neighborhoods. Also, policies and implementation measures in the Environmental Resources Element establish standards for conserving open space and incorporating landscaping for individual projects. The Environmental Resource Element also provides guidance for implementing land use designations. The goals and policies in the Environmental Resources Element that relate to aesthetics are as follows:

Goal ER-1: Acquire and protect important open space in and around Sonoma.

- *Policy ER-1.1*. Maintain the greenbelt surrounding he city.
- *Policy ER-1.2*. Base open space dedication and acquisition decisions on creating a network of public and private spaces that reflects the significant natural and cultural characteristics of Sonoma.
- *Policy ER-1.4*. Require new development to provide adequate private land, and where appropriate, public open space.
- *Policy ER- 2.6*. Preserve existing trees and plant new trees.

Sonoma County

The Open Space Element and Land Use Element of the *Sonoma County General Plan* (Sonoma County, 1998) govern the visual and aesthetic resources of the county. The Open Space Element identifies three categories of scenic resources: community separators, scenic landscape units, and scenic highway corridors. The General Plan goals related to scenic resources are as follows:

> **Goal OS-1:** Preserve the visual identities of communities by maintaining open space areas between cities and communities.
>
> - *Community separators* are open spaces or rural areas that separate the discrete, identifiable cities and communities of Sonoma County. Community separators provide visual relief from continuous urbanization and lead to the avoidance of corridor-style urbanization. In Sonoma County, community separators include major open space features such as the Sonoma Mountains and Sonoma Creek, and agricultural fields, valley floors, and vineyards. The Sonoma County General Plan identifies eight areas as community separators.
>
> **Goal OS-2:** Retain the largely open, scenic character of important scenic landscape units.
>
> - *Scenic landscape units* are areas that are open, provide important visual relief from urban densities, and have little capacity to absorb very much development without significant visual impact.
>
> **Goal OS-3:** Identify and preserve roadside landscapes which have a high visual quality as they contribute to the living environment of local residents and to the county's tourism economy.
>
> - *Scenic highway corridors* are rural roads from which the community, as well as tourists, can view the variety and beauty of the many landscapes of Sonoma County, including orchards, forest covered hills, rolling dairy lands, scenic valleys, and vineyards. City of Sonoma General Plan

The City of Sonoma General Plan governs the visual and aesthetic resources of the city (City of Sonoma, 1995). The Community Development Element includes the following goal and policy for protecting aesthetic resources:

> **Goal CDE-6:** Enhance Sonoma's "sense of place."
>
> - *Policy 20*. Important scenic vistas shall be protected.

Napa SD

City of Napa

The *City of Napa General Plan* Land Use Element governs aesthetic resources in the Napa.

> **Goal LU-1:** To maintain and enhance Napa's small town qualities and unique community identity.

- *Policy LU-1.1*. The City shall maintain the Rural Urban Limit (RUL) and Greenbelt designation to define the extent of urban development through the year 2020 and to provide for the maintenance of the city's surrounding open space/agriculture to separate Napa from other communities.

- *Policy LU-1.4*. The City shall recognize the importance of historic properties, districts, and aesthetic resources as contributors to the city's identity.

- *Policy LU-1.5*. The City shall refine the locations and concept of the key gateways to the city identified in Figure 1-3, and shall establish gateway and scenic corridor design guidelines for both public and private development to ensure attractive entrances to the city. Greenways, open space, riparian corridors, wetland areas and agricultural land shall be considered as important components when they exist in gateway locations.

- *Policy LU-1.6*. The City shall designate SR 29, SR 121, and SR 221 as scenic corridors. The City shall endeavor to improve the scenic character of these roads through undergrounding of utilities, increased landscaping, street tree planting, and other improvements.

- *Policy LU-1.7*. The City shall enhance the Napa River as a natural corridor and recreational spine connecting neighborhoods, employment areas, and other destinations.

- *Program LU-1.A*. The City shall initiate further study to: 1) define gateway locations, with consideration to the importance of all entrances to the city; and, 2) prepare and adopt gateway design guidelines for private and public development at the key gateway and scenic locations.

  Program LU-1.B. The City shall revise the Zoning Ordinance to include a Scenic Corridor Overlay Zone to apply to the scenic corridors identified in Policy LU-1.5.

  Program LU-1.C. The City shall identify other major streets in the City which are important to the city's character, history, and identity (e.g., Soscol Avenue) and establish corridor streetscape design guidelines that will address adjacent land uses, signage, landscaping, street tree planting, and placement of public parking along these designated corridors.

- *Policy PR-7.10*. The City shall design and construct public improvements that will enhance the aesthetics of pedestrian access to cultural districts.

Napa County

The Land Use Element and Community Character Element in the *Napa County General Plan* govern aesthetics in the unincorporated areas of Napa County. The following goals and policies appear in the Community Character Element and Land Use Elements

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 for the benefit of residents, businesses, and visitors.

Goal CC-3: Recognize the role of the arts in contributing to the quality of life and the attractiveness of Napa County.

- *Policy CC-1*. The County will retain the character and natural beauty of Napa County through the preservation of open space.

- *Policy CC-2*. New wineries and other uses requiring the issuance of a Use Permit should be designed to convey their permanence and attractiveness.

- *Policy CC-3*. Signs shall be used primarily to provide necessary information and business identification rather than the advertisement of goods and services. Sign size limits and locational requirements shall be established to avoid over-proliferation of signs. Although the sign size may be limited, lettering should be large and easy to read.

- *Policy CC-4*. Consistent with current regulations regarding road setbacks and fences, the County shall preserve the existing significant natural features by requiring all development to retain the visually open, rural character of the County and by allowing solid sound walls only in unique circumstances and where acceptable noise levels are exceeded.

- *Policy CC-5*. When approving the conversion of existing forested land to vineyards or nonagricultural activity, the County shall require the retention of trees in strategic locations to preserve the forested appearance of the site as seen from public roadways.

- *Policy CC-6*. The grading of building sites, vineyards, and other uses shall incorporate techniques to retain as much as possible a natural landform appearance. Examples include:

  - The overall shape, height, and grade of any cut or fill slope shall be designed to simulate the existing natural contours and scale of the natural terrain of the site.
  - The angle of the graded slope shall be gradually adjusted to the angle of the natural terrain.
  - Sharp, angular forms shall be rounded and smoothed to blend with the natural terrain.

- *Policy CC-7*. The County seeks to strengthen the arts community and encourages incorporation of art into the design of new public buildings.

- *Policy CC-8*. Scenic roadways which shall be subject to the Viewshed Protection Program are those shown in Figure CC-3, or designated by the Board of Supervisors in the future.

- *Policy CC-9*. The County may consider pursuing formal scenic highway designation by the State of California for some roadways, provided that in each case the benefits of the designation are found to outweigh any costs.

- *Policy CC-10*. Consistent with the County's Viewshed Protection Program, new developments in hillside areas should be designed to minimize their visibility from the County's scenic roadways and discourage new encroachments on natural ridgelines. The County shall continue implementation of the Viewshed Protection

Program and shall apply the protective provisions of the program to all public projects.

- *Policy CC-11*. The County will work with the City of American Canyon to explore the possibility of jointly developing a Scenic Highway 29 Corridor plan within our respective jurisdictions to develop the Highway 29 Corridor in a comprehensive and aesthetically pleasing manner.

- *Policy CC-12*. Development projects on County-owned sites within the incorporated cities/town shall be designed to be visually compatible with their surroundings in terms of use, scale, and materials.

- *Policy CC-13*. The County's roadway construction and maintenance standards and other practices shall be designed to enhance the attractiveness of all roadways and in particular scenic roadways. New roadway construction or expansion shall retain the current landscape characteristics of County-designated scenic roadways, including retention of existing trees to the maximum extent feasible and required re-vegetation and re-contouring of disturbed areas. In addition:

- *Policy CC-14*. To the extent allowed by law, telecommunications facilities and transmission lines shall not be located within view of any scenic roadway unless they are sited and designed so as to be virtually invisible to the naked eye from the roadway, are designed to appear as a natural feature of the environment and do not block views or disrupt scenic vistas, or are so well architecturally-integrated into an existing building as to effectively be unnoticeable.

- *Policy CC-15*. The County opposes the construction of any new billboards and supports the removal of existing billboards.

- *Policy CC-16*. Adjacent to scenic roadways, utilities shall be placed underground where possible.

- *Policy AG/LU-94*. Sites designated as Study Area on the Land Use Map are urbanized sites adjacent to the City of Napa that shall be considered for revitalization and reuse by a mix of uses via site-specific planning. Site planning shall consider the availability and cost of urban services, opportunities for public access and recreation, impacts and benefits to Napa County and the City of Napa, and the potential for future annexation to the City.

  Action Item AG/LU-94.1: The County shall adopt development standards for the Pacific Coast/Boca and Napa Pipe sites which shall include, but may not be limited to, buffering and visual screening from existing industrial uses and Syar Quarry, design features that include physical buffers (e.g., vegetation, landscape features, or walls in unique circumstances), building placement and orientation in a manner that physically separates these sites from incompatible operations of adjacent uses.

- Policy AG/LU-117: The County shall seek to be involved to the maximum extent possible in the decisions of local, state, federal, and other agencies regarding the location of energy generation facilities, electrical transmission lines, communications towers, water tanks, or other facilities with the potential to negatively affect the visual character of the county.

- *Policy AG/LU-21*. The following standards shall apply to lands designated as Agricultural Resource on the Land Use Map of this General Plan.

- *Policy AG/LU-74*. Notwithstanding AG/LU-25, the County supports the extension of recycled water to the Coombsville area to reduce reliance on groundwater in the Milliken-Sarco-Tulocay(MST) area.

APPENDIX 3.15

Environmental Justice

A discussion of local, state and federal plans and policies that pertain to recreation in the NSP study area are presented in Appendix 3.13.

APPENDIX 3.16
Socioeconomics

Local

This section lists the goals and policies in the general plans for the cities and counties in the project area that could apply to socioeconomics and the proposed project.

LGVSD and Novato SD

The City of Novato, City of San Rafael, and Marin County general plans do not identify goals, policies, and implementation measures related to the social or economic effects of the proposed project.

SVCSD

The *Sonoma County General Plan 2020* update is in draft form and does not include an economic element, but does have draft policies to preserve agricultural land in Sonoma County (Sonoma County, 2008b). The *City of Sonoma General Plan* (2006) identifies the following goal and policies related to economic and social effects:

> *Goal LE-1*: Support and enhance the local economy in a manner consistent with Sonoma's character and in furtherance of its quality of life.
>
> *Policy 1.1*: Focus on the retention and attraction of businesses that reinforce Sonoma's distinctive qualities – such as agriculture, food and wine, history, and art – and that offer high paying jobs.
>
> *Policy 1.3*: Support efforts by the County and other organizations to ensure long-term viability of the agricultural economy in Sonoma Valley, including by preventing urban development from encroaching into agricultural areas.
>
> *Policy 1.4*: Encourage continued production of agricultural commodities within the city and local-serving agricultural marketing opportunities.

Napa SD

The Napa County General Plan (2008b) identifies the following goal and policies related to economic and social effects:

> *Goal E-1*: Maintain and enhance the economic viability of agriculture in Napa County.

> *Policy E-1*: The County's economic development will focus on ensuring the continued viability of agriculture in Napa County and is an important part of the County's economy, generating jobs, local spending and tax revenues.
>
> *Policy E-4*: The County will work with governmental and non-governmental groups – including chambers of commerce, industry associations, the cities and town, and economic development organizations – to maintain the economic viability of agriculture and improve the economic vitality of all of Napa County.

The *City of Napa General Plan* does not identify goals, policies, and implementation measures related to the social or economic effects of the proposed project.

APPENDIX 8A
EIR/EIS Distribution List

The public distribution of the North Bay Water Recycling Program Draft EIR/EIS emphasizes the use of electronic media to ensure cost-effective, broad availability to the public and interested parties. The Draft EIR/EIS is available on the Internet at the North Bay Water Reuse Authority (NBWRA) project website, www.nbwra.org. The Draft EIR/EIS is also available for review at the locations listed below.

All persons, agencies, and organizations listed in this chapter will be informed of the availability of and locations to obtain the Draft EIR/EIS, as well as the timing of the 45-day public/agency comment period. Parties listed below will receive either the full Draft EIR/EIS and an electronic copy of the executive summary and an electronic copy of the Draft EIR/EIS and appendices.

Document Availability

Copies of the Draft EIR/EIS are available for public review at the following locations:

Las Gallinas Valley Sanitary District
300 Smith Ranch Road
San Rafael, CA 94903

Novato Sanitary District
500 Davidson Street
Novato, California 94945

Napa Sanitation District
935 Hartle Court
Napa, CA 94559

Sonoma County Water Agency
404 Aviation Avenue
Santa Rosa, CA 95403

Sonoma County Central Library
211 E. Street
Santa Rosa, CA 95404

Napa City-County Library
580Coombs Street
Napa, CA 94559

Marin County-Novato Branch Library
1720 Novato Boulevard
Novato, CA 94947

Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Marin County-Central Branch Library
3501 Civic Center Drive #427
San Rafael, CA 94903

Sonoma Valley Regional Library
775 West Napa St.
Sonoma, CA 95476

Agencies and Organizations Receiving Copies of the Draft EIR/EIS are listed below. A notice of availability of the Draft EIR/EIS will be sent to additional individuals and interested parties.

Federal and State Agencies

California Department of Fish and Game
California Department of Health (Drinking Water Field Operations Branch)
California Department of Parks and Recreation
California Department of Parks and Recreation (Delta Vista District)
California Department of Parks and Recreation (Natural Resources)
California Department of Planning and Research (Planning Unit)
California Department of Transportation (Transportation Planning)
California Department of Transportation (right of way department)
California Department of Water Resources (Central District)
California Department of Water Resources (Recycled Water Task Force)
California Department of Water Resources (Statewide Water Planning)
California Farm Bureau Federation (Natural Resources)
California Environmental Protection Agency
California Office of Historic Preservation
California Regional Water Quality Control Board (Region 2)
California State Water Resources Control Board (Financial Assistance, office of water recycling)
Federal Aviation Administration (Western-Pacific Region)
National Marine Fisheries Service (Central Valley Area and Southwest Division)
Office of Planning and Research, State Clearinghouse
U.S. Army Corps of Engineers (Regulatory Functions Branch)
U.S. Fish and Wildlife Service (Sacramento Office)
U.S. Environmental Protection Agency
U.S. Geological Survey (Water Resources Division)

Regional/Local Entities

Bay Area Air Quality Management District
Bay of Conservation and Development Commission (BCDC)
City of Novato
City of Novato Public Works
City of Napa (community development; city manager; public works)
City of Novato (City Manager)
City of Petaluma (public works, city manager, community development)
City of Rohnert Park (city manager, community development, public works)
City of Santa Rosa (city manager, community development, public works)
City of San Rafael (city Manager)
City of San Rafael Library
City of San Rafael planning department; public works
City of Sonoma (public works)
County of Napa (public works; planning dept)

County of Sonoma
Hamilton Park Homeowners Association
Las Gallinas Valley Sanitary District
Los Carneros Water District
Napa County Farm Bureau
Napa Valley Country Club
Napa County Clerk
Napa County Fire Department
Napa County Library
Novato Unified School District
Marin County Fire Department
Marin County Clerk
Marin County Public Works
Marin Audubon Society
Marin Municipal Water District
Marin County
San Francisco Bay Regional Water Quality Board (San Francisco Bay Region)
Sonoma County Clerks Office
Sonoma County Department of Health Services (Environmental Health Division)
Sonoma County Library
Sonoma Valley Regional Library
Sonoma County Permit and Resource Management Department
Sonoma County Regional Parks
Sonoma County Transportation and Public Works
Sonoma Valley Resource Conservation District
Sonoma County Fire Department
Sonoma County Conservation Action
Sonoma County Farm Bureau
Sonoma County PRMD
Sustainable Agriculture Coalition
Sonoma County Water Agency
Valley of the Moon Water District

Other Interested Parties

Friends of Novato Creek
Save the Bay
San Francisco Estuary Institute
Sierra Club Marin Group
Spawn
G.U.L.P.
Friends of the Napa River
Congress Valley Water District
Carneros Quality Alliance

Greenbelt Alliance
Friends of the Eel Rivers (David Keller)
Coastal Conservancy
Audubon California
Bay Institute
Greenbelt Alliance
Owl Foundation
Petaluma River Keepers
Russian River Keepers
Russian River Watershed Protection Committee
Sierra Club
Physicians for Recycled Water
Planning of Conservation League