3.4 Water Quality

This section describes the existing water quality conditions in the action area and applicable regulatory requirements for the proposed action. The section presents an analysis of potential impacts to water quality resulting from project operation, including potential public health impacts related to recycled water use. 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. Refer to **Section 3.2, Surface Hydrology,** for impacts related to drainage, and flooding, and **Section 3.3, Groundwater Resources,** for impacts related to groundwater.

3.4.1 Affected Environment/Setting

Regional Conditions

Creek and river flows in the action area are generated primarily by stormwater runoff within each watershed. The mix of urban, rural, agricultural, and undeveloped land uses within the action area contributes to varied pollutant types and concentrations that currently exist in each creek and river. Urban pollutants can include sediment, oil and grease, heavy metals, pesticides, and debris. Agricultural pollutants can include contaminants from livestock manure and chemical fertilizers. Rural residential land uses can potentially contribute pollutants through malfunctioning septic tanks in areas without access to municipal wastewater treatment systems. **Table 3.4-1** presents the waterways in the action area that have been identified by either the U.S. Environmental Protection Agency (USEPA) or the San Francisco Bay Regional Water Quality Control Board (RWQCB) as not meeting the water quality standards necessary for each water bodies' stated beneficial use under Section 303(d) of the Clean Water Act (CWA).

Recycled Water Use

The member agencies of the North Bay Water Reuse Authority have all developed recycled water use programs that distribute recycled water for irrigation of local vineyards, dairies, hay growers, golf courses, and parks. During the dry season, the agencies send treated wastewater that is in excess of their agreed recycled water commitments to holding ponds, wetlands, or rely upon the spreading and evapotranspiration of recycled water on local grassland. The member agencies do not produce recycled water for drinking or recreational purposes.

Recycled Water Quality

Recycled water is used for numerous agricultural applications throughout California and the United States. In addition to the filtration and disinfection requirements that recycled water must meet for allowed disinfected tertiary treated uses under Title 22, additional water quality parameters should also be reviewed relative to a given plant or crop's tolerance to certain constituents sometimes found in recycled water. The chemical constituents to consider for agricultural irrigation are salinity, sodium, trace elements, chlorine residual, and nutrients. Recycled water may have higher concentrations of these constituents than the groundwater or

TABLE 3.4-1
SECTION 303(d) WATER QUALITY IMPAIRED WATERWAYS

Location/ County	Water Body	Pollutant	Source
Action area	San Pablo Bay	Chlordane	Nonpoint Source
		DDT	Nonpoint Source
		Dieldrin	Nonpoint Source
		Dioxin Compounds	Atmospheric Deposition
		Exotic Species	Ballast Water
		Furan Compounds	Atmospheric Deposition
		Mercury	Municipal Point Sources; Resource Extraction; Atmospheric Deposition; Natural Sources; Nonpoint Source
		Nickel	Source Unknown
		PCBs	Unknown Nonpoint Source
		PCBs (dioxin-like)	Unknown Nonpoint Source
		Selenium	Industrial Point Sources; Agriculture; Natural Sources; Exotic Species
Marin	Gallinas Creek	Diazinon	Urban Runoff/ Sewer
	San Antonio Creek	Diazinon	Urban Runoff/ Sewer
	Miller Creek	Diazinon	Urban Runoff/ Sewer
	Novato Creek	Diazinon	Urban Runoff/ Sewer
Sonoma	Petaluma River	Diazinon	Urban Runoff/Storm Sewers
		Nutrients	Agriculture; Construction/Land Development; Urban Runoff/Storm Sewers
		Pathogens	Agriculture; Construction/Land Development; Urban Runoff/Storm Sewers
		Sedimentation /Siltation	Agriculture; Construction/Land Development; Urban Runoff/Storm Sewers
	Sonoma Creek	Nutrients	Agriculture; Construction/Land Development; Land Development; Urban Runoff/Storm Sewers
		Pathogens	Agriculture; Construction/Land Development; Land Development; Urban Runoff/Storm Sewers
		Sedimentation /Siltation	Agriculture; Construction/Land Development; Land Development; Urban Runoff/Storm Sewers
Napa	Napa River	Nutrients	Agriculture
		Pathogens	Agriculture; Urban Runoff/Storm Sewers
		Sedimentation /Siltation	Agriculture; Construction/Land Development; Land Development; Urban Runoff/Storm Sewers

SOURCE: RWQCB, 2007

surface water sources from which the water supply is originally drawn. However, the recycled water can also have lower concentrations of these constituents than the local or imported water currently used for irrigation.

The types and concentrations of constituents in recycled water depend upon the municipal water supply, the influent waste streams (i.e., domestic, commercial, and industrial contributions), amount and composition of infiltration in the wastewater collection system, the wastewater treatment process, and type of storage facilities. A description of the constituents that should be considered when addressing agricultural or landscaping irrigation is provided below.

Salinity: Salinity is an important parameter in determining the suitability of the water to be used for irrigation. High levels of salinity can reduce growth and production of grapevines and other plants. As the salt concentration of the water in the root zone increases above a threshold level the plant must expend more energy to absorb water, and both the growth rate and ultimate size of the crop progressively decrease. However, the threshold and the rate of growth reduction vary widely among different crop species. In addition, the amount of infiltrated water that drains below the root zone affects the whether the salinity in the recycled water causes a potential impact (USEPA 2004 and University of California Agriculture and Natural Resources, 2006).

Sodium: Excessive sodium in irrigation water could contribute to soil dispersion and structural breakdown, where the finer soil particles fill many of the smaller pore spaces, sealing the surface and greatly reducing water infiltration rates (USEPA 2004).

Trace elements: Nickel and zinc have visible adverse effects in plants at lower concentrations than the levels harmful to animals and humans. Although boron is an essential element required for plant growth, it is nonetheless potentially harmful in the soil should the concentrations become too high. Grapes are particularly sensitive to boron in irrigation water and can develop injury to leaves and shoots if concentrations exceed certain limits (USEPA 2004).

Chlorine Residual: Free chlorine residual at concentrations of less than 1 milligram per liter (mg/L) usually poses no problem to plants. However, some sensitive crops may be damaged at levels as low as 0.05 mg/L. Some woody crops may accumulate chlorine in the tissue to toxic levels. Excessive chlorine has a similar leaf-burning effect as sodium and chloride when sprayed directly on foliage (USEPA 2004).

Nutrients: The nutrients most important to a crop's needs are nitrogen, phosphorus, potassium, zinc, boron, and sulfur. Recycled water usually contains enough of these nutrients to supply a large portion of a crop's needs. The most beneficial nutrient is nitrogen. Both the concentration and form of nitrogen need to be considered in irrigation water. While excessive amounts of nitrogen stimulate vegetative growth in most crops, it may also delay maturity and reduce crop quality and quantity. The nitrogen in recycled water may not be present in concentrations great enough to produce satisfactory crop yields, and some supplemental fertilizer may be necessary In addition, excessive nitrate in forages can cause an imbalance of nitrogen, potassium, and magnesium in grazing animals. This could be an issue if the forage is used as a primary feed source for livestock; however, such high concentrations are usually not expected with municipal recycled water (USEPA 2004).

Microconstituents: Microconstituents is a term currently used to describe a variety of natural and manmade substances, including pharmaceuticals, household cleaning products, personal care products, plastics, packaging, and other products of a developed society. Microconstituents have been observed in surface and groundwater sources, municipal drinking water supplies and in treated wastewater streams. The degree to which the presence of these compounds in treated wastewater is contributing to their accumulation in surface water and groundwater resources is unknown. The human toxicological significance of microconstituents in drinking water or in recycled water for landscaping use is an ongoing area of research, and regulatory agencies have not yet developed standards due to insufficient availability of data to evaluate potential effects of exposure to humans. Potential health effects for humans from exposure to microconstituents at concentrations detected in reclaimed water is not scientifically known but is suspected to range from an extremely low risk to unassignable risk. The availability of research data on the potential uptake of microconstituents by crops irrigated with recycled water is also insufficient to support conclusive determination of the significance of any potential affect generated at this time.

The University of California (UC) Division of Agriculture and Natural Resources completed a study in 2006 which examined the quality of Napa SD's recycled water and its appropriateness for vineyard applications. The study concluded that Napa SD recycled water is satisfactory for vineyards with respect to salinity, chloride, sodium, boron, calcium to magnesium ratio, 24 trace elements (mostly metals), nitrogen, phosphorus, and potassium. The study also concluded that long-term salinity accumulation is not expected to occur when using Napa SD recycled water. Nitrogen levels in recycled water can be beneficial for vineyards and other crops. For vineyards that do not currently fertilize with nitrogen additives, the use of appropriate cover crops and additional irrigation sources can offset the low amount of nitrogen present in recycled water. The study also stated that recycled water use is consistent with the National Organic Program standards for certified organic vineyards (UC Division of Agriculture and Natural Resources, 2006).

Summaries of water quality data for the participating wastewater treatment plants' (WWTP) effluent from 2005 to 2007 are presented in this section. The descriptions also present the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture and the North Bay Watershed Association (NBWA).

As is presented in this section, in almost all cases the effluent of the participating WWTPs meets the recommended water quality guidelines for agricultural application. The constituents that are present at levels higher than those recommended by the NBWA study are chlorine residual, sodium, and specific conductance (as measured at Napa SD for chlorine residual, and SVCSD and Napa SD for sodium and specific conductance); however, these constituents have no recommended maximum level by USEPA or the UC Division of Agriculture. Under this project, each agency would be upgrading its tertiary treatment capacity (except for Sonoma Valley County Sanitation District which already has a significant tertiary treatment capacity). It is likely that as the tertiary treatment capacity is increased, the constituent levels in the effluent would also be reduced due to the improved filtration requirements of California Code of Regulations (CCR) Title 22 tertiary treated recycled water.

LGVSD

During the wet season (November 1 through May 31), LGVSD's treated wastewater is discharged to the tidal portion of Miller Creek and ultimately to San Pablo Bay. During the non-discharge dry season (June 1 through October 31), treated wastewater is stored in ponds and used to irrigate local pasture and maintain wetlands. LGVSD also provides secondary treated wastewater in the summer to the Marin Municipal Water District (MMWD) for further treatment prior to reuse.

During the dry season, LGVSD sends approximately 1.0 to 1.5 million gallons per day (mgd) (3.1 to 4.6 AF per day) of its secondary effluent to an MMWD facility where it is treated to Title 22 disinfected tertiary levels (SCWA & Reclamation, 2008). MMWD distributes the recycled water for use in local car washes, laundries, and cooling towers, and the irrigation of ballparks, business parks, and residences. LGVSD applies the remainder of the secondary treated effluent to 385 acres of adjacent land, which includes 20 acres of wildlife marsh, 40 acres of storage ponds, 10 acres of salt marsh, 20 acres of irrigated landscaping, and 200 acres of irrigated pasture. **Table 3.4-2** presents the WWTP effluent quality data from 2005 to 2007 provided by LGSVD, and the corresponding USEPA, NBWA and University of California Division of Agriculture and Natural Resources guidelines for the use of recycled water.

Novato SD

During the discharge season (September 1 through May 31), Novato SD's treated wastewater is either recycled, or discharged directly to San Pablo Bay. During the non-discharge period, treated wastewater is conveyed to three District-owned irrigation parcels (totaling approximately 820 acres), two treated water storage ponds, and 15 acres of wildlife habitat. These parcels are on Route 37, approximately 1 mile northeast of the Ignacio pump station. In 2008, Novato SD began operating a new 0.5 mgd (1.5 AF per day) facility, the Recycled Water Facility, east of the Novato WWTP that is able to provide treatment to Title 22 tertiary levels. The facility is operational and is expandable to 1.0 mgd. It is located near the WWTP's discharge pipeline in the current irrigation fields and is designed to supply approximately 269 AF per year (AFY) of recycled water to the local Stone Tree Golf Course and other users (SCWA & Reclamation, 2008). **Table 3.4-3** presents the WWTP effluent quality data from 2005 to 2007 provided by Novato SD, and the corresponding USEPA, NBWA and University of California Division of Agriculture and Natural Resources guidelines for the use of recycled water.

SVCSD

Currently, the treated wastewater from the SVCSD wastewater treatment facility is discharged into Schell Slough (waters of the U.S.) from November 1 through April 30. Between May 1 and October 31, treated wastewater is either stored in SVCSD's reservoirs R1, R2, R3, and R4 or used for local irrigation of agricultural areas and wetland enhancement in southern Sonoma Valley.

SVCSD has a well-established system and significant infrastructure for the conveyance, storage, and distribution of recycled water to local users. SVCSD delivers approximately 1,200 AF of recycled water to local users annually. Existing recycled water users are along Highway 121 and

TABLE 3.4-2
LGVSD WWTP EFFLUENT WATER QUALITY

		Water Quality Guidelines					LGVSD[4]		
				NBWA Values, Suggested Restrictions on Use[3]					
Constituent	**Units**	**UC Davis Recommended Maximum Level for Vineyard Water Quality Needs[1]**	**USEPA Recommended Constituent Limits in Recycled Water for Irrigation[2]**	**None**	**Slight to Moderate**	**Severe**	**Minimum**	**Average**	**Maximum**
Arsenic	mg/L	0.1	0.10		NA[5]		0.0001	0.0008	0.0015
Beryllium	mg/L	0.1	0.10		NA		0.00006	0.00008	0.0002
Copper	mg/L	0.2	0.2		NA		0.006	0.008	0.011
Lead	mg/L	5.0	5.0		NA		0.0002	0.0003	0.0007
Nickel	mg/L	0.2	0.2		NA		0.0003	0.004	0.006
pH		NA	NA		6.5 - 8.4		6.9	7.4	7.9
Selenium	mg/L	0.02	0.02		NA		0.001	0.001	0.005
Zinc	mg/L	2.0	2.0		NA		0.036	0.063	0.081

1 Source: University of California Division of Agriculture and Natural Resources 2006.
2 Source: Guidelines for Water Reuse, USEPA, 2004
3 North Bay Watershed Association (NBWA) Recycled Water Characterization.
4 Values are a compilation of sampling data for 2005-2007.
5 No guideline exists.

TABLE 3.4-3
NOVATO SD WWTP EFFLUENT WATER QUALITY

		Water Quality Guidelines					Novato SD[4]		
				NBWA Values, Suggested Restrictions on Use[3]					
Constituent	**Units**	**UC Davis Recommended Maximum Level for Vineyard Water Quality Needs[1]**	**USEPA Recommended Constituent Limits in Recycled Water for Irrigation[2]**	**None**	**Slight to Moderate**	**Severe**	**Minimum**	**Average**	**Maximum**
Arsenic	mg/L	0.1	0.10		NA[5]		0.0004	0.0007	0.0010
Cadmium	mg/L	0.01	0.01		NA		<0.00003	0.00011	0.00030
Chromium	mg/L	0.1	0.1		NA		0.0004	0.00094	0.00190
Lead	mg/L	5.0	5.0		NA		0.00013	0.00033	0.00140
Nickel	mg/L	0.2	0.2		NA		0.0033	0.0047	0.0074
Selenium	mg/L	0.02	0.02		NA		0.0005	0.0007	0.0010
Zinc	mg/L	2.0	2.0		NA		0.0110	0.0238	0.0460

1 Source: University of California Division of Agriculture and Natural Resources 2006.
2 Source: Guidelines for Water Reuse, USEPA, 2004
3 North Bay Watershed Association (NBWA) Recycled Water Characterization.
4 Values are a compilation of combined effluent data for 2005-2007.
5 No guideline exists.

Highway 12, Thiodoro Road, Millerick Lane, Ramal Road, and Skaggs Island Road in the western part of the Los Carneros American Viticultural Area. The remaining treated wastewater discharges to wetlands owned by SVCSD in Sonoma Valley and the California Department of Fish and Game. The discharge wetlands are approximately 3.5 miles southeast of the treatment plant.

Table 3.4-4 presents the WWTP effluent quality data from 2004 to 2007 provided by SCVSD, and the corresponding USEPA, NBWA and University of California Division of Agriculture and Natural Resources guidelines for the use of recycled water.

Napa SD

During the wet season (November 1 through May 31), Napa SD's WWTP treated wastewater is discharged to the Napa River. During the non-discharge dry season (June 1 through October 31 and sometimes longer), treated wastewater is stored in ponds and used to irrigate golf courses, vineyards, landscaping for corporate parks, ball fields, a cemetery, and other landscaping uses.

The Napa SD Water Recycling Facility has two 10-AF recycled water reservoirs on-site. The adjacent WWTP includes four oxidation ponds that total 344 acres. Napa SD typically stores raw water in these ponds and then treats the water immediately before distribution.

Recycled water users are primarily located along the recycled water distribution pipeline at Highway 29 and Jameson Canyon Road and further north along the Napa Valley Highway. In 2005, recycled water customers received 426 MG per year (1,307 AFY) (Napa SD 2005). Napa SD has identified potential future recycled water users in the MST area, including Napa State Hospital.

Table 3.4-5 presents the WWTP effluent quality data from April 2007 to October 2007provided by Napa SD, and the corresponding USEPA, NBWA and University of California Division of Agriculture and Natural Resources guidelines for the use of recycled water.

Napa Salt Marsh Ponds

The Napa Salt Marsh pond area was historically the marshland between Napa River and Sonoma Creek in the north San Pablo Bay region and is now called the Napa River Unit of the California Department of Fish and Game's (CDFG) Napa- Sonoma Marshes Wildlife Area. The Napa-Sonoma Marsh historically encompassed more than 38,000 acres extending from San Pablo Bay north to the historic limits of the tidal baylands and east to west between the Napa River and Tolay Creek. Of the 38,000 acres, 25,000 acres of the marshlands lie in the Napa River watershed. Currently, approximately 36% of the land remains classified as wetland habitat, while 25% consists of inactive solar salt production ponds, 12% residential areas, and 20% cropland and pasture; the remaining 7% has miscellaneous uses. The salt ponds, cropland, and pasture are diked to prevent tidal and fluvial inundation under normal conditions (JSA, 2003).

TABLE 3.4-4
SVCSD WWTP EFFLUENT WATER QUALITY

Constituent	Units	Water Quality Guidelines					SVCSD[4]			
		UC Davis Recommended Maximum Level for Vineyard Water Quality Needs[1]	USEPA Recommended Constituent Limits in Recycled Water for Irrigation[2]	NBWA Values, Suggested Restrictions on Use[3]			Desired Range[5]	Minimum	Average	Maximum
				None	Slight to Moderate	Severe				
Aluminum	mg/L	5.0	5.0	NA [(8)]			None	< 0.05	0.05925	0.087
Arsenic	mg/L	0.1	0.10	NA			None	< 0.002[6]		
Beryllium	mg/L	0.1	0.10	NA			None	< 0.001[6]		
Bicarbonate[4]	mg/L	NA	NA	<90	90 - 500	>500	75	72	125	210
Boron	mg/L	1	0.75	<0.7	0.7 - 3.0	>3.0	< 0.5	0.35	0.41	0.48
Cadmium	mg/L	0.01	0.01	NA			None	< 0.001[6]		
Chloride	mg/L	262	NA	<140	140 - 350	>350	30	63	76	82
Chromium	mg/L	0.1	0.1	NA			None	< 0.002[6]		
Cobalt	mg/L	0.05	0.05	NA			None	< 0.02[6]		
Copper	mg/L	0.2	0.2	NA			None	0.0050	0.0064	0.0080
Dissolved Solids	mg/L	NA	NA	<450	450 - 2000	>2000	< 500	370	460	520
Fluoride	mg/L	1.0	1.0	NA			None	0.13	0.17	0.22
Iron	mg/L	NA	5.0	<0.1	0.1 - 1.5	>1.5	None	<0.05		<0.10
Lead	mg/L	5.0	5.0	NA			None	< 0.002[6]		
Manganese	mg/L	0.2	0.2	<1.0	1.0 - 5.0	>5.0	None	< 0.02		0.021
Molybdenum	mg/L	0.01	0.01	NA			None	< 0.02[6]		
Nickel	mg/L	0.2	0.2	NA			None	0.0023	0.0031	0.0038
pH		NA	NA	6.5 - 8.4				7.5	8.125	9.2
Selenium	mg/L	0.02	0.02	NA			None	< 0.005[6]		
Sodium	mg/L	NA	NA	<3	3 - 9	>9	< 30	52	66	80
Sodium Adsorption Ratio	units	3		NA			< 6.0	1.86	2.11	2.63
Specific Conductance	mmhos/ cm [7]	NA	NA	<0.7	0.7 - 3.0	>3.0	< 750	0.52	0.67	0.76
Vanadium	mg/L	0.1	0.2	NA			None	< 0.1[6]		
Zinc	mg/L	2.0	2.0	NA			None	0.035	0.049	0.058

1 Source: University of California Division of Agriculture and Natural Resources 2006.
2 Source: Guidelines for Water Reuse, USEPA, 2004
3 North Bay Watershed Association (NBWA) Recycled Water Characterization.
4 Values are a compilation of sampling data for 2000-2003.
5 Desired range as defined by SVCSD.
6 All sampling events were non-detect less than the value specified.
7 mmhos/cm = millimhos per centimeter
8 No guideline exists.

TABLE 3.4-5
NAPA SD WWTP EFFLUENT WATER QUALITY

Constituent	Units	Water Quality Guidelines					Napa SD[4]		
		UC Davis Recommended Maximum Level for Vineyard Water Quality Needs[1]	USEPA Recommended Constituent Limits in Recycled Water for Irrigation[2]	NBWA Values, Suggested Restrictions on Use[3]			Minimum	Average	Maximum
				None	Slight to Moderate	Severe			
Aluminum	mg/L	5.0	5.0	NA[7]			0.120	0.284	0.510
Arsenic	mg/L	0.1	0.10	NA			< 0.0005	0.0085	0.011
Beryllium	mg/L	0.1	0.10	NA			<0.0001		<0.0005
Boron	mg/L	1	0.75	<0.7	0.7 – 3.0	>3.0	0.00029	0.00082	0.00187
Cadmium	mg/L	0.01	0.01	NA			< 0.1[5]		
Chloride	mg/L	262	NA	<140	140 - 350	>350	0.06	0.16	0.25
Chlorine residual[4]	mg/L	NA	NA	<1.0	1.0 – 5.0	>5.0	8	8.5	9.1
Chromium	mg/L	0.1	0.1	NA			<0.0005	0.0008	0.0012
Cobalt	mg/L	0.05	0.05	NA			<0.0005		0.0005
Copper	mg/L	0.2	0.2	NA			0.0020	0.0040	0.0076
Fluoride	mg/L	1.0	1.0	NA			<0.10		0.18
Iron	mg/L	NA	5.0	<0.1	0.1 - 1.5	>1.5	< 0.00005		0.00007
Lead	mg/L	5.0	5.0	NA			< 0.0003		< 0.0005
Lithium	mg/L	2.5	2.5	NA			0.0090	0.0102	0.0120
Manganese	mg/L	0.2	0.2	<1.0	1.0 - 5.0	>5.0	0.0001	0.0456	0.0930
Molybdenum	mg/L	0.01	0.01	NA			0.0010	0.0020	0.0033
Nickel	mg/L	0.2	0.2	NA			0.0036	0.0046	0.0061
Selenium	mg/L	0.02	0.02	NA			<0.001		0.013
Sodium Adsorption Ratio	units	3	NA	NA			0.6	3.5	4.7
Specific Conductance	mmhos/cm[6]	NA	NA	<0.7	0.7 - 3.0	>3.0	0.9	1.0	1.3
Vanadium	mg/L	0.1	0.2	NA			< 0.002		0.002
Zinc	mg/L	2.0	2.0	NA			0.001	0.017	0.024

1 Source: University of California Division of Agriculture and Natural Resources 2006.
2 Source: Guidelines for Water Reuse, USEPA, 2004
3 North Bay Watershed Association (NBWA) Recycled Water Characterization.
4 Values are a compilation of sampling data from April 2007 through October 2007.
5 All sampling events were at non-detect less than the value specified.
6 mmhos/cm = millimhos per centimeter
7 No guideline exists.

A majority of the remaining wetland areas are public lands and are under the management of CDFG as part of the wildlife area. Current operations are designed to manage the site for wildlife and involve managing water use from both San Pablo Bay and Napa River to reduce/manage salinities to the extent possible and ensure appropriate water levels for wildlife. Generally, Napa River water is conveyed to the south and San Pablo Bay water is conveyed to the north. Salinity and elevation are recorded monthly at each pond. Current operating conditions provide a mix of wildlife habitats including tidal mudflats, deep water, salt ponds, levees, and marsh sloughs (JSA, 2003).

3.4.2 Regulatory Framework

Federal – Pertaining to Effluent Discharges

Clean Water Act

Growing public awareness and concern for controlling water pollution led to enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act (CWA). The CWA established the basic structure for regulating discharges of pollutants into the waters of the U.S., and gave the USEPA the authority to implement pollution control programs such as setting wastewater standards for industrial and municipal dischargers. The CWA also continued requirements to set water quality standards for all known contaminants in surface waters. The CWA made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions (USEPA 2008). This federal law and its accompanying regulations are applicable to WWTP discharges to waterways, however separate State laws and requirements, as described below, govern the delivery and application of recycled water in California.

Section 303(d) of the CWA requires states, territories, and authorized tribes to develop a list of water quality-impaired segments of waterways. The 303(d) list includes water bodies that do not meet water quality standards for the specified beneficial uses of that waterway, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water bodies on their 303(d) lists and implement a process, called Total Maximum Daily Loads (TMDLs), to meet water quality standards (USEPA 2002).

The TMDL process is a tool for implementing water quality standards and is based on the relationship between pollution sources and in-stream water quality conditions. The TMDL establishes the maximum allowable loadings of a pollutant that can be assimilated by a water body while still meeting applicable water quality standards. States are required to include approved TMDLs and associated implementation measures in State water quality management plans. Within California, TMDLs implementation is through regional Basin Plans.

State – Pertaining to Effluent Discharges

Porter-Cologne Water Quality Act

The California Porter-Cologne Water Quality Act (Porter-Cologne Act) was enacted in 1969 and established the State Water Resources Control Board (SWRCB). It is also known as Division 7 of the California Water Code.

The Porter-Cologne Act also contains rules and requirements consistent with the federal CWA for discharges to waterways. It defines water quality objectives as the limits or levels of water constituents that are established for reasonable protection of beneficial uses. However, unlike the CWA, the Porter-Cologne Act applies to both surface and groundwater. The Porter-Cologne Act requires that each of nine semi-autonomous RWQCBs establish water quality objectives, while acknowledging that water quality may be changed to some degree without unreasonably affecting beneficial uses. Beneficial uses, together with the corresponding water quality objectives, are defined as standards, per Federal CWA regulations. Therefore, the regional plans provide the regulatory framework for meeting State and Federal requirements for water quality control. Changes in water quality are only allowed if the change is consistent with the most restrictive beneficial use designation identified by the State, does not unreasonably affect the present or anticipated beneficial uses, and does not result in water quality less than that prescribed in the water quality control plans.

State – Pertaining to Recycled Water Delivery

California Health and Safety Code

On July 1, 2007, the California Department of Public Health (CDPH) was created and took over the duties, powers, purposes, functions, responsibilities, and jurisdiction of the California Department of Health Services, pursuant to Health and Safety Code Section. The Health and Safety Code establishes authority to Sanitary Districts pertaining to water recycling and distribution (section 6512), and building standards pursuant to gray water and untreated wastewater systems.

The California Safe Drinking and Toxic Enforcement Act of 1986 intended to protect the State's drinking water sources from chemicals know to cause cancer and birth defects. Section 116551 establishes regulations to water sources that are augmented with recycled water.

California Water Code

Section 13550 of the California Water Code states that the use of potable domestic water for nonpotable uses, including, but not limited to, cemeteries, golf courses, parks, highway landscape areas, and industrial and irrigation uses is a waste and unreasonable use of water if recycled water is available that meets specified conditions of its use. SWRCB supports the use of recycled water and has included increased water recycling in its strategic plan. In 1991, the California Water Recycling Act (California Water Code 13577) set recycling goals of 700,000 AFY of water by year 2000 and 1 million of water AFY by 2010.

The mission of the California Department of Water Resources (DWR) is to "manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments". One of the DWR's goals, included in their strategic plan, is to develop and assess strategies for managing California's water resources, including development of the California Water Plan Update. The 2005 California Water Plan Update recognizes the importance of water recycling to California's water supply system and recommends a variety of steps to take in order for the State to increase recycled water usage. Several recommendations included in the plan were incorporated from the *Recycled Water Task Force Final Report*.[1]

In 1993, the State of California recognized the importance of industrial use of recycled water with the passage of Senate Bill 1196. This piece of legislation provided a mechanism for providing credits to industry on its discharge permit when it uses recycled water, as long as the discharge does not exceed California's water quality standards for the water body. The measure was designed to give industry a greater incentive to use recycled water. For more information on recycled water use credits in the context of the proposed project, see Section 3.4.3, Permitting Framework.

Title 17 Code of Regulations

CDPH is responsible for developing criteria for regulating the use of recycled water in California. The RWQCBs promulgate requirements for individual projects in conformance with the CDPH regulations. Title 17 states "that the water supplier will protect the public water supply from contamination by implementation of cross connection control program". Sections 7601-7605 describe the measures required to prevent contamination of potable water from recycled water.

Title 22 California Code of Regulations

As stated above, CDPH is responsible for developing criteria for regulating the use of recycled water in California. Article 4 in Title 22 of the California Code of Regulations sets water quality standards and treatment reliability criteria for recycled water. Title 22 establishes regulatory requirements for use of recycled water to protect its beneficial uses for land applications and/or industrial uses.

According to Title 22 of the California Code of Regulations (CCR), developed and implemented by CDPH, recycled water can be used for irrigation, wetlands, restricted and non-restricted recreational impoundments, landscape impoundments, industrial or commercial cooling or air conditioning, toilet flushing and industrial and construction applications (22 CCR).

Title 22 establishes quality and treatment standards for the beneficial use of recycled water. The recycled water quality standards (organized with the highest level of treatment first and the lowest level of treatment last) are as follows:

[1] Assembly Bill 331 passed in 2001 required the creation of the 2002 Recycled Water Task Force to identify constraints, impediments, and opportunities for the increased use of recycled water and report to the state legislature by July 1, 2003. The *Recycled Water Task Force Final Report* was released June 2003 (DWR, 2003).

Disinfected tertiary recycled water: A filtered and subsequently disinfected wastewater that meets the following criteria:

- The filtered wastewater has been disinfected by either:
  - A chlorine disinfection process following filtration that provides a contact time (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or
  - A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.
- The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed [a most probable number (MPN)] of 2.2 per 100 milliliters [mL] utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 mL in more than one sample in any 30-day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 mL.

Disinfected secondary-2.2 recycled water: Recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed an MPN of 2.2 per 100 mL utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 mL in more than one sample in any 30-day period.

Disinfected secondary-23 recycled water: Recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed an MPN of 23 per 100 mL utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 mL in more than one sample in any 30-day period.

Undisinfected secondary recycled water (also known as oxidized wastewater): Wastewater in which the organic matter has been stabilized, is non-putrescible, and contains oxygen.

Table 3.4-6 summarizes the water quality standards set by Title 22 for agricultural and urban uses of recycled water. The table is organized with the highest level of treatment at the top and the lowest level of treatment at the bottom.

As discussed in Section 2.0, Project Description, all recycled water served by the project will be treated to disinfected tertiary recycled water standards. Treatment to tertiary standards can be readily achieved using a variety of filtration and disinfection methods that are both reliable and relatively common to the wastewater treatment industry. Title 22 also sets use requirements for the separation of areas irrigated with recycled water from domestic groundwater supply wells. The domestic well guidelines are as follows:

TABLE 3.4-6
SUMMARY OF TITLE 22 STANDARDS AND USES OF RECYCLED WATER

Treatment Standard	Use
Disinfected tertiary recycled water	• Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop • Parks and playgrounds • School yards • Residential landscaping • Unrestricted access golf courses • Any other irrigation not prohibited by other sections of the CCR
Disinfected secondary-2.2 recycled water	• Food crops where the edible portion is produced above ground and not contacted by the recycled water
Disinfected secondary-23 recycled water	• Cemeteries • Freeway landscaping • Restricted access golf courses • Ornamental nursery stock and sod farms where access by the general public is not restricted • Pasture for animals producing milk for human consumption • Any non-edible vegetation where access is controlled so that the irrigated area cannot be used as if it were part of a park, playground, or school yard
Undisinfected secondary recycled water	• Orchards where the recycled water does not come into contact with the edible portion of the crop, • Vineyards where the recycled water does not come into contact with the edible portion of the crop • Non-food-bearing trees • Fodder and fiber crops and pasture for animals not producing milk for human consumption • Seed crops not eaten by humans • Food crops that must undergo commercial pathogen-destroying processing before being consumed by humans • Ornamental nursery stock and sod farms provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting, retail sale, or allowing access by the general public

SOURCE: Title 22, California Code of Regulations

- 50 feet for disinfected tertiary recycled water unless additional conditions are met;
- 100 feet for impoundments of disinfected tertiary recycled water;
- 100 feet for irrigation or impoundments of disinfected secondary-2.2 or disinfected secondary-23 recycled water; and
- 150 feet for non-disinfected secondary recycled water (22 CCR).

Additional recycled water use requirements include the following:

- "Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency."
- "Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities."

- "Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff."

- "No spray irrigation of any recycled water, other than disinfected tertiary recycled water, shall take place within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or school yard."

- "All use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public…that include the following wording: 'RECYCLED WATER - DO NOT DRINK'."

- "Except as allowed under section 7604 of Title 17, California Code of Regulations, no physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water."

- "The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access." (22 CCR)

State Recycled Water Policy

The SWRCB approved a Recycled Water Policy in February 2009. California Water Code section 13140 authorizes the SWRCB to adopt state policy for water quality control. The purpose of the Policy is to focus on increasing the use of recycled water from municipal wastewater sources that meets the definition in Water Code Section 13050(n), in a manner that implements state and federal water quality laws. The SWRCB expects to develop additional policies to encourage the use of stormwater, encourage water conservation, encourage the conjunctive use of surface and groundwater, and improve the use of local water supplies. When used in compliance with this Policy, Title 22 and all applicable state and federal water quality laws, the SWRCB finds that recycled water is safe for approved uses, and strongly supports recycled water as a safe alternative to potable water for such approved uses.

The Policy declares the SWRCB's mission to "preserve, enhance and restore the quality of California's water resources to the benefit of present and future generations." To achieve that mission, the SWRCB supports and encourage every region in California to develop a salt/nutrient management plan by 2014 that is sustainable on a long-term basis and that provides California with clean, abundant water. These plans shall be consistent with the Department of Water Resources' (DWR) Bulletin 160, as appropriate, and shall be locally developed, locally controlled and recognize the variability of California's water supplies and the diversity of its waterways. The SWRCB strongly encourages local and regional water agencies to move toward clean, abundant, local water for California by emphasizing appropriate water recycling, water conservation, and maintenance of supply infrastructure and the use of stormwater (including dry-weather urban runoff) in these plans (SWRCB, 2009).

The purpose of the Policy is to provide direction to the Regional Water Quality Control Boards (RWQCBs), proponents of recycled water projects, and the public regarding the appropriate criteria to be used by the SWRCB and the RWQCBs in issuing permits for recycled water

projects (SWRCB, 2009). The Policy describes the benefits of recycled water use, mandate for the use of recycled water, roles of the SWRCB, RWQCB, CDPH and DWR and includes plans and requirements that would be a part of streamlined permitting for landscape irrigation projects.

According to the Policy, regulatory requirements for recycled water including emerging contaminants shall be based on the best available peer-reviewed science. SWRCB, in consultation with CDPH, plans to convene a "blue-ribbon" advisory panel to guide future actions relating to constituents of emerging concern (SWRCB, 2009).

Regional

Basin Plan

The California Water Code (Section 13240) requires the preparation and adoption of water quality control plans (Basin Plans), and the Federal CWA (Section 303) supports this requirement. According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected, water quality objectives to protect those uses, and an implementation program needed for achieving the objectives. State law also requires that Basin Plans conform to the policies set forth in the Water Code, beginning with Section 13000, and any State policy for water quality control. The Basin Plans are regulatory references for meeting the state and federal requirements for water quality control (40 Code Federal Regulations 131.20). One significant difference between the State and Federal programs is that California's basin plans also establish standards for groundwater in addition to surface water (SFRWQCB, 2007).

Basin Plans are adopted and amended by nine regional water boards under a structured process involving full public participation and state environmental review. Basin Plans and amendments thereto do not become effective until approved by the SWRCB. Regulatory provisions must be approved by the Office of Administrative Law. Adoption or revision of surface water standards is subject to the approval of the USEPA.

The SWRCB and the regional water boards maintain each Basin Plan in an updated and readily available edition that reflects the current water quality control programs.

RWQCB Resolution 94-086

The San Francisco Bay Basin Plan prohibits the discharge of wastewater under certain conditions, at any point where the wastewater does not receive a minimal initial dilution of at least 10:1 and into any nontidal water or dead-end slough or similar confined water area. The Basin Plan provides an exception to the prohibition under the following conditions:

- where an equivalent level of environmental protection can be achieved, or
- the discharge is approved as part of a reclamation project, or
- where it can be demonstrated that the net environmental benefits will be derived as a result of the discharge.

The RWQCB Resolution 94-086 examines the three exceptions and states that demonstrating the net environmental benefit associated with creating, restoring, and/or enhancing wetlands will apply as an exception to the prohibition of the discharge. The proposed project would include initial use of 2,000 to 3,000 AF of recycled water from the SVCSD WWTP for wetland habitat restoration at the Napa Salt Marsh. SVCSD would be required to obtain an exception to discharge prohibition from the San Francisco Bay RWQCB.

Local

The general plans, policies, and regulations associated with impacts to water quality within the affected jurisdictions are presented in **Appendix 3.4** of this EIR/EIS.

3.4.3 Environmental Consequences/Impacts

Significance Criteria under CEQA

Based on the Appendix G of the California Environmental Quality Act (CEQA) Guidelines, project implementation would have significant impacts and environmental consequences on water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially alter the existing drainage pattern of the site or area (including through the alteration of the course of a stream or river) in a manner that would result in substantial erosion, siltation, on- or offsite; or
- Otherwise substantially degrade water quality

Environmental Consequences/Impact Analysis

Impacts to water quality resulting from construction and operation of the proposed project at both the project level and program level are discussed below. The impacts are considered at a project level for the Phase 1 components included in the Project Alternatives, including both short-term construction and long-term operational phases. The components unique to each alternative that are not included in Phase 1 of the Implementation Plan are analyzed in this section at the programmatic level. Impacts are summarized in **Table 3.4-19**.

With implementation of **Mitigation Measures 3.4.1a**, water quality impacts associated with the project and programmatic level actions proposed as a part of Phase 1 of the Implementation Plan and the alternatives under consideration in this EIR/EIS are anticipated to be less than significant. However, site-specific impacts and mitigation measures will be analyzed for the actions unique to each alternative described at a programmatic level in this EIR/EIS in a future project level document in accordance with NEPA and CEQA.

The NEPA No Action baseline and CEQA No Project baseline establish two conditions against which alternative effects are compared. The NEPA baseline standard compares the alternatives against the conditions anticipated under the Future No Action Alternative or conditions

anticipated in the future without the implementation of an action alternative. The CEQA baseline standard compares the alternatives against the existing conditions in the action area at the time the project Notice of Preparation (NOP) was published.

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. (Less than Significant Impact with Mitigation)

All of the proposed project alternatives will, to varying degrees, require earthmoving activities such as excavation, soil stockpiling, and filling that could result in increased erosion and discharge of sediment to neighboring surface water bodies through the disturbance of currently stable soils. Construction activities could result in soil erosion and subsequent discharge of sediment to adjacent surface water or drainages. Sedimentation to the waterways could degrade water quality for beneficial uses by increasing channel sedimentation and suspended sediment levels (turbidity), reducing the flood-carrying capacity, and adversely affecting associated aquatic and riparian habitats. Additionally, sedimentation to local drainage facilities could result in reduced storm flow capacities, resulting in localized ponding or flooding during storm events. Without mitigation, these impacts would be considered potentially significant.

Operation of construction equipment to support the development of project-related infrastructure could potentially result in the accidental release of fuels and other hazardous materials associated with the operation of that equipment to neighboring water bodies in the action area. Hazardous materials associated with construction equipment, such as fuels, oils, antifreeze, coolants, and other substances could adversely affect water quality if inadvertently released to surface waters.

The acreage of land disturbed by individual facility construction would exceed 1 acre, the minimum acreage that would initiate the preparation of a SWPPP in accordance with the NPDES Construction Activity Storm Water Permit requirements. This General Permit mandates the development and implementation of a SWPPP identifying BMPs to reduce erosion of disturbed soils and release of hazardous materials into water courses. As such, Member Agencies or their contractors would prepare a SWPPP requiring implementation of BMPs for erosion and sediment control. These include the use of straw waddles, silt fencing, water detention structures, baker tanks, and other control measures that would limit construction-related storm runoff. Because these measures would reduce the erosion of soils and release of hazardous materials into water courses, facility construction would not violate water quality standards for construction activities. Preparation of the SWPPP and compliance with implementation and reporting measures identified in the SWPPP would ensure compliance with state regulatory policies to minimize the potential for water quality impacts from construction activities (**Mitigation Measure 3.4.1a**). Therefore, impacts to stormwater quality would be reduced to a less than significant level.

Earthmoving activities below grade could potentially encounter low lying groundwater and require dewatering actions to handle and dispose of groundwater that would otherwise interfere with

construction activities. Groundwater levels vary throughout the action area and depths of excavation would vary with each project component. Project construction activities, particularly trenching (for all project facilities), jack and bore tunneling, and directional drilling (for recycled water pipelines), may intercept groundwater, which would require temporary localized dewatering to facilitate construction. Groundwater would be pumped and discharged to the local drainage system. Water from dewatering operations could contain materials used during typical construction activities such as silt, fuel, grease, or other chemicals. The discharge from construction dewatering would have the potential to affect downstream surface water quality. All discharges of groundwater would occur in compliance with limitations established in the Basin Plan, and would be required to implement BMPs established in the SWPPP as required under the NPDES General Activity Storm Water Permit. Implementation of **Mitigation Measure 3.4.1a**, would reduce impacts to surface water from dewatering activities to a less-than-significant level.

This section presents descriptions of the construction actions proposed and specifically the lengths of new pipelines and number of times each alternative would cross a water body. As is described above, **Mitigation Measure 3.4.1a** would reduce the potential impact of construction-related short term stormwater erosion, hazardous material spills, and dewatering effects to a less-than-significant level.

No Project Alternative

The proposed project would not be implemented under the No Project Alternative, therefore there would be no change in existing conditions. 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 3.4-1, No Action**).

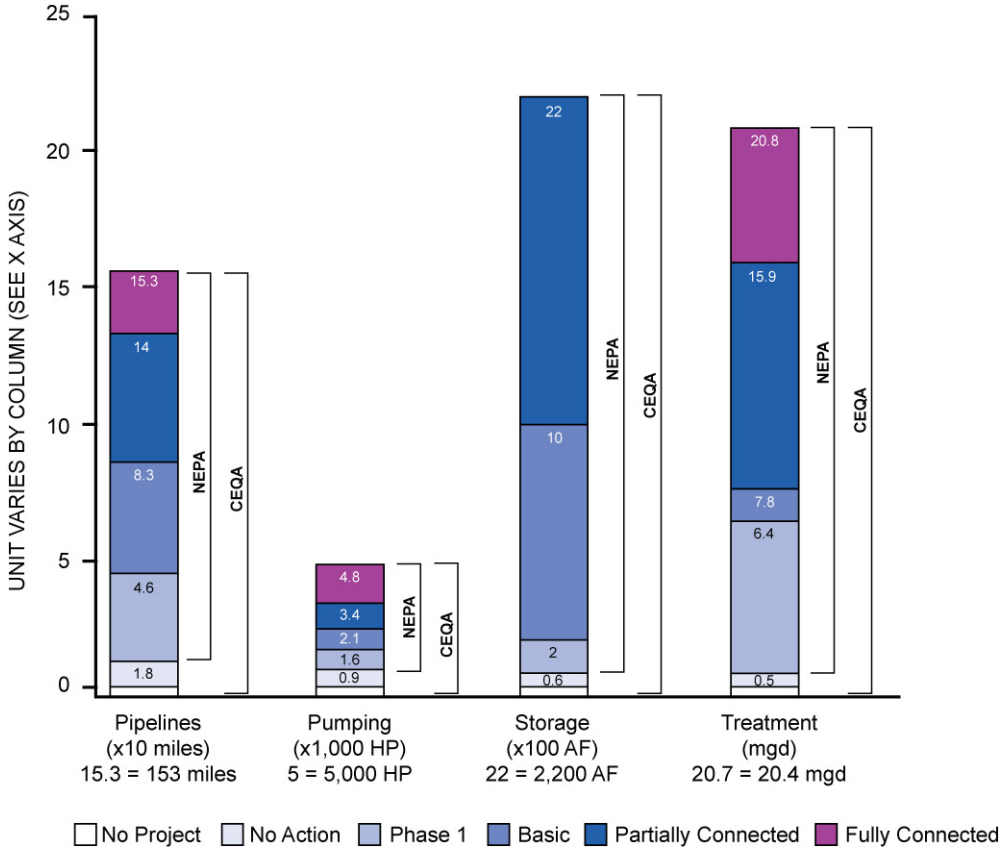
LGVSD/ NMWD

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

Novato SD/ NMWD

Under the No Action Alternative, Novato SD would construct 4.4 miles of new distribution pipeline to access the North Novato Service Area and would cross seven unnamed water bodies.

CHART 3.4-1
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

For the most part, pipelines would be installed using trenchless technology to avoid impacts to surface water features and water quality. In the event that trenchless technology is not feasible, trenching would be restricted to dry season conditions. As described previously, any trenching activities would be subject to the SWPPP and other stormwater control requirements. Implementation of BMPs to minimize effects to surface water quality, as established in **Mitigation Measure 3.4-1a**, would reduce impacts to less than significant.

SVCSD

Under the No Action Alternative, SVCSD would construct 5.2 miles of new distribution pipeline to access the Sonoma Valley Recycled Water Project. These activities would require 8crossings of both named and unnamed water bodies. The named water bodies include Carriger Creek, Rogers Creek, Schell Creek, Huichica Creek, Champlin Creek, Fowler Creek, and a tributary to Felder Creek,. For the most part, pipelines would be installed using trenchless technology to avoid impacts to surface water features and water quality. In the event that trenchless technology is not feasible, trenching would be restricted to dry season conditions. As described previously, any

trenching activities would be subject to the SWPPP and other stormwater control requirements. Implementation of BMPs to minimize effects to surface water quality, as established in **Mitigation Measure 3.4-1a**, would reduce potential impacts to less than significant.

Under the No Action Alternative, the SVCSD Napa Salt Marsh Restoration Project would include construction of approximately 4.0 miles of pipeline parallel to an existing pipeline that extends between SVCSD WWTP and the SVCSD storage ponds located near the intersection of Northwestern Pacific Railroad and Ramal Road. From the ponds an additional 4.5 miles of new pipeline would be constructed to convey water to the salt pond mixing chamber in one of three alternative pipeline routes (see **Chapter 2, Project Description**). The Option A salt pond pipeline was discussed and analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (JSA, 2003). Option A would require 17 crossings of water bodies. For the most part, pipelines would be installed using trenchless technology to avoid impacts to surface water features and water quality. In the event that trenchless technology is not feasible, trenching would be restricted to dry season conditions. As described previously, any trenching activities would be subject to the SWPPP and other stormwater control requirements. Implementation of BMPs to minimize effects to surface water quality, as established in **Mitigation Measure 3.4-1a**, would reduce impacts to 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 4.3 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 3.8 mgd of tertiary capacity, and no additional storage.

The water quality impacts 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 by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would upgrade tertiary treatment capacity at the LGVSD WWTP, construct a new booster pump station, and NMWD would construct a recycled water distribution system to serve Hamilton Field. Between the LGVSD WWTP and Hamilton Field, Pipeline Options A, B, and C would involve 10, 8 and 2 stream crossings, respectively. The Coast Guard Housing Loop System, part of the NMWD URWP, would involve five stream crossings during construction. Primary roadways that would be affected in the Hamilton Field area include Main Gate Road, Palm Drive, South Oakwood Drive, Casa Grande Drive, and Hangar Avenue. As

noted above, **Mitigation Measures 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level.

Novato SD/NMWD

Under Phase 1, NMWD would construct 9.8 miles of new distribution pipeline to access the North and Central Novato Service Areas and would cross seven named and unnamed water bodies. The named water bodies include a tributary to Scottsdale Pond, a tributary to Scottsdale Marsh, and a tributary to Novato Creek. As noted above, **Mitigation Measure 3.4.1a** will reduce the significance of construction-related impacts to a less than significant.

SVCSD

Under Phase 1, SCVSD would construct 5.2 miles of new distribution pipeline to access the Sonoma Valley Recycled Water Project. These activities would require 8 crossings of both named and unnamed water bodies. The named water bodies include Carriger Creek, Rogers Creek, Fowler Creek, Huichica Creek, Schell Creek, Champlin Creek, and Felder Creek,. As noted above, **Mitigation Measures 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level. Impacts related to 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 17.5 miles of new distribution pipeline to access the MST Area and would cross 32 named and unnamed water bodies. **Mitigation Measure 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level.

Alternative 1: Basic System (Program level)

Compared to the No Project Alternative (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 water quality impacts associated with 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

Under the Basic System, there would be no additional recycled water pipelines constructed by LGVSD or additional stream crossings when compared to Phase 1. The impact discussion for LGVSD under Phase 1 is also applicable for the Basic System.

Novato SD/NMWD

Under the Basic System, Novato SD would construct 2.6 miles of new distribution pipeline to the Sears Point Service Area and would cross five additional named and unnamed water bodies. As

noted above, **Mitigation Measure 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level.

SVCSD

Under the Basic System, SVCSD would construct additional new distribution pipeline to access the Sonoma Valley Recycled Water Project area and would cross 31 additional named including Sonoma Creek, Nathanson Creek, and Arroyo Seco, as well as other unnamed tributaries. Construction of the Napa Salt Marsh Restoration Pipeline would involve five additional stream crossings. As noted above, **Mitigation Measure 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level.

Napa SD

Under the Basic System, Napa SD would construct 12.5 miles of new distribution pipeline to access the Carneros East area and the Napa Salt Marsh Restoration Area. These activities would require 11 additional crossings at named and unnamed water bodies. As noted above, **Mitigation Measure 3.4.1a** will reduce the significance of construction-related 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 water quality impacts associated with 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, LGVSD would construct 5.5 miles of new distribution pipeline to access the Peacock Gap Golf Course and 6.5 miles of pipeline to the Novato SD WWTP. These activities would involve two additional crossings at named and unnamed water bodies. **Mitigation Measure 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level.

Novato SD/NMWD

Under the Partially Connected System, Novato SD will construct 14.1 miles of new distribution pipeline to access the North, Central, and West Novato Service Areas, and 9.4 additional miles of pipeline to access the Sears Point Service Area. These activities would require 24 additional crossings at named and unnamed water bodies. **Mitigation Measure 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level.

SVCSD

Under the Partially Connected System, SVCSD would construct 8.3 miles of new distribution pipeline to access the Southern Sonoma Valley Service Area and would involve an additional 12 crossings at named and unnamed water bodies. Construction of the Napa Salt Marsh Restoration Pipeline would involve five additional stream crossings. As noted above, **Mitigation Measure 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level.

Napa SD

Under the Partially Connected System, Napa SD would construct 8.4 additional miles of new distribution pipeline to access the Carneros East Area, 3.2 additional miles of pipeline to access the MST Area, and 1.3 miles of pipeline to access lands near the Napa SD WWTP. These activities would require an additional 19 crossings at named and unnamed water bodies. Mitigation **Measures 3.4.1a** will reduce the significance of construction-related 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 water quality 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

Under the Fully Connected System, there would be no additional recycled water pipelines constructed by LGVSD or additional stream crossings when compared to Alternative 2. The impact discussion for LGVSD under the Partially Connected System is also applicable for the Fully Connected System.

Novato SD/ NMWD

Under the Fully Connected System, Novato SD would construct 2.8 miles of new distribution pipeline to access the Sears Point Service Area; however the new facilities would not require additional stream crossing. There is no additional impact.

SVCSD

Under the Fully Connected System, SVCSD would construct 10.5 miles of new distribution pipeline to access the Central Sonoma Valley Service Area and the Sears Point area, which would require an additional 23 crossings at named and unnamed water bodies. **Mitigation Measure 3.4.1a** will reduce the significance of construction-related impacts to a less than significant level. Under

the Fully Connected Alternative there are no additional stream crossing impacts associated with construction of the Napa Salt Marsh Restoration Pipeline.

Napa SD

Under the Fully Connected System, there would be no additional recycled water pipelines constructed by Napa SD or additional stream crossings when compared to the Partially Connected System. The impact discussion for Napa SD under the Partially Connected System is also applicable for the Fully Connected System.

Mitigation Measures

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.

Impact Significance after Mitigation: Less than Significant.

Impact 3.4.2: Incidental Runoff. Project operation would increase the use of recycled water for irrigation within the action area, with the potential to impact surface water quality. (Less than Significant)

Each of the alternatives would increase the use of tertiary treated recycled water within the action area for agricultural uses (vineyard irrigation, dairy/pasture, tree and row crops), urban irrigation (including golf courses, parks, and general landscaping) and environmental enhancement (Napa Salt Ponds). Most of the land that would receive recycled water from the proposed project is currently irrigated with groundwater water, local surface water, or imported surface water supplies.

Over irrigation could potentially increase the runoff of recycled water in local creeks, streams, and rivers that discharge to San Pablo Bay. Title 22 recycled water use requirements prohibit the over-application of recycled water to the extent that it would cause ponding and runoff into adjacent surface water bodies. These policies minimize the potential for the runoff of recycled water applied through irrigation. Additionally, the Project's recycled water would be treated to the Title 22 requirements for disinfected tertiary recycled water. This quality of water is allowed to be used as a water supply source for agricultural irrigation of food crops, landscape irrigation with high public contact, and non-restricted recreational impoundments.

This section describes the potential effects of each alternative by service area, as well as the potential effect under the No Project/No Action Alternative. A summary of the amount of recycled water provided within each Member Agency by alternative is provided in **Table 3.4-7**. While the alternatives have the potential to have a small amount of runoff of recycled water during the summer, the Title 22 requirements would minimize (if not eliminate) the runoff, and the runoff would be of highly-treated water. The water quality impacts to the receiving waters would be less than significant. Please refer to **Impact 3.4.9** for a discussion regarding use of recycled water for habitat enhancement in the Napa Salt Marsh.

No Project Alternative

The proposed project 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.

TABLE 3.4-7
RECYCLED WATER AVAILABLE UNDER EACH OF THE ALTERNATIVES

Service Area	Specific Region	No Project	No Action Alternative	Phase 1	Basic System	Partially Connected System	Fully Connected System
		(Acre-Feet Per Year)					
LGVSD	Peacock Gap	0	0	0	0	207	207
	Hamilton Field (southern portion of NMWD URWP)	0	0	202	202	202	202
	Sears Point	0	0	0	0	0	0
Novato SD	NMWD URWP (northern central, and west portions)	0	193	542	542	1,070	1,070
	Sears Point	0	0	0	0	968	1,044
	Southern Sonoma Valley	0	0	0	0	0	1,587
SVCSD	Central Sonoma Valley	0	0	0	0	0	1,511
	Sonoma Valley	0	874	874	2,719	2,719	2,719
	Southern Sonoma Valley	0	0	0	0	1,662.5	0
	Salt Marsh	0	(1)	(2)	(3)	(4)	(5)
Napa SD	Carneros East and Napa Salt Marsh	0	0	0	1,055 (3)	1,440 (4)	1,440 (5)
	MST	0		2,137	2,137	2,826	2,826
	Napa (local)	0	0	0	0	155	155
Total	**Compared to No Project**	**0**	**1,067**	**3,755**	**6,655**	**11,250**	**12,761**
Total	**Compared to No Action**	**--**	**--**	**2,688**	**5,588**	**10,182.5**	**11,694**

(1) Additional 3,257 AFY release of recycled water to Napa Salt Ponds 7 and 7A, depending upon year type. Because this is a beneficial use that is not related to water supply, this number is tracked separately in each of the alternatives
(2) Additional 2,362 AFY release of recycled water to Napa Salt Ponds 7 and 7A, depending upon year type.
(3) Additional 5,825 AFY release of recycled water to Napa Salt Ponds 7 and 7A, depending upon year type
(4) Additional 2,933 AFY release of recycled water to Napa Salt Ponds 7 and 7A, depending upon year type.
(5) Additional 3,085 AFY release of recycled water to Napa Salt Ponds 7 and 7A, depending upon year type.

For comparison to the Action Alternatives, it is estimated that approximately 1,067 AFY of recycled water would be available from projects implemented by Member Agencies on an individual basis (see Table 3.4-7).

Under 2020 conditions, it is likely that surface water quality in tributaries to North San Pablo Bay would continue to be reduced over time, due primarily to unregulated non-point source pollutant loads associated with land uses within the North San Pablo Bay watershed. Constituents that are currently on the 303(d) list for San Pablo Bay identified in Table 3.4-1, as well as additional constituents, would continue to be regulated under the TMDL process. Title 22 recycled water use requirements prohibit the over-application of recycled water to the extent that it would cause ponding and runoff into adjacent surface water bodies. These requirements minimize the potential for the runoff of recycled water applied through irrigation.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impacts to surface water would occur.

Novato SD/NMWD, and SCVSD

Under the No Action Alternative, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. User agreements would require compliance with Title 22, which prohibits over-irrigation that would cause ponding or surface runoff. Therefore, potential impacts to surface water quality associated with indirect runoff from irrigation are considered less than significant.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impacts to surface water 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 4.3 mgd of tertiary capacity, and 65 AF of storage. This would provide 3,755 AFY of recycled water for urban, agricultural and environmental enhancement uses. 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 3.8 mgd of tertiary capacity, and no additional storage. This would provide 2,688 AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality impacts 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 by Member Agency is provided below.

LVGSD/ NMWD, Novato SD/ NMWD, SCVSD, Napa SD

Under Phase 1, each Member Agency would deliver the amount of recycled water within their service area identified in **Table 3.4-7**. User agreements would require compliance with Title 22, which prohibits over-irrigation that would cause ponding or surface runoff. Therefore, potential impacts to surface water quality associated with indirect runoff from irrigation are considered less than significant.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline 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. This would provide 6,655 AFY of recycled water for urban, agricultural and environmental enhancement uses. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246HP of pumping capacity, treatment

facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage. This would provide 5,588 AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality impacts associated with 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.

LVGSD/NMWD, Novato SD/NMWD, SCVSD, Napa SD

Under the No Action Alternative, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. User agreements would require compliance with Title 22, which prohibits over-irrigation that would cause ponding or surface runoff. Therefore, potential impacts to surface water quality associated with indirect runoff from irrigation are considered less than significant.

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. This would provide 11,250 AFY of recycled water for urban, agricultural and environmental enhancement uses. 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 provide 10,183AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality impacts associated with 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.

LVGSD/NMWD, Novato SD/NMWD, SCVSD, Napa SD

Under the No Action Alternative, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. User agreements would require compliance with Title 22, which prohibits over-irrigation that would cause ponding or surface runoff. Therefore, potential impacts to surface water quality associated with indirect runoff from irrigation are considered less than significant.

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. This would provide 12,761 AFY of recycled water for urban, agricultural and environmental enhancement uses. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135miles of new pipeline, 3,907 HP of pumping

capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage. This would provide 11,694 AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality 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.

LVGSD/NMWD, Novato SD/NMWD, SCVSD

Under the No Action Alternative, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. User agreements would require compliance with Title 22, which prohibits over-irrigation that would cause ponding or surface runoff. Therefore, potential impacts to surface water quality associated with indirect runoff from irrigation are considered less than significant.

Napa SD

No additional supplies would be delivered by Napa SD under Alternative 3. Therefore, impacts relating to incidental runoff would be equivalent to those identified under Alternative 2.

Mitigation Measures

No additional mitigation measures are required.

Impact 3.4.3: Public Health. The proposed project would increase the use of recycled water on lands within the action area, with the potential to affect public health. (Less than Significant)

The proposed project would increase the use of tertiary treated recycled water within the action area for agricultural, urban and environmental enhancement uses. Recycled water supplies delivered as a part of this project would be treated to meet the requirements of Title 22 for disinfected tertiary recycled water for unrestricted use.

The Member Agencies currently distribute recycled water in their service areas for various uses, as described below. Please refer to Appendix 3.4A for a list of other communities in Northern California that are currently using recycled water.

- *LGVSD*: Existing reclamation area includes 20 acres of wildlife marsh, 40 acres of storage ponds, 10 acres of saltwater marsh, 20 acres of irrigated landscaping in partnership with Marin Municipal Water District, 200 acres of irrigated pasture, and 3.5 miles of public access areas (LGVSD, 2008).

- *Novato SD*: Existing recycled water use area includes 820 acres of irrigated pasture, wildlife pond, and Stone Tree Golf Course. Novato SD reclaims approximately 40 percent of average annual dry weather flow (Novato SD, 2006).

- *SVCSD*: Currently approximately 1,200 AFY of 4,500 to 5,000 AFY of treated wastewater is reused for urban and agricultural irrigation.

- *Napa SD*: Napa SD has produced nearly 700 million gallons per year of Title 22 non-restricted use water. The availability of recycled water has allowed the area to develop recreational facilities including the Chardonnay Golf Course and Vineyards and Eagle Vines Vineyards and Golf Course. Existing recycled water areas include landscape and turf irrigation (383 acres), vineyard irrigation (approximately 445 acres), and reclamation sites (Napa SD, 2009).

Public health concerns related to the use of recycled water for irrigation are related to direct interaction and exposure to irrigated areas at public facilities, such as parks and schools, potential health effects associated with the consumption of agricultural products irrigated with these supplies, and the potential effects on the health of the crops themselves as it relates to farm and vineyard production levels over the long term.

The California Department of Public Health (DPH) has produced Guidelines for Use of Reclaimed Water, which apply to areas receiving water that meets Title 22 Water Recycling Criteria. The guidelines focus on application and management specifications for various recycled water uses, including general use requirements, landscape irrigation requirements, impoundment requirements, and agricultural reuse area guidelines. General requirements include posting signs to inform the public in areas where recycled water is in use, confining recycled water to authorized use areas, using purple pipes to indicate that water distribution and transmission systems contain recycled water, and other requirements designed to ensure that recycled water use does not adversely affect public health through direct interaction. As outlined in Section 3.4.2 above, Title 22 also sets use requirements for the separation of areas irrigated with recycled water from domestic groundwater supply wells.

The potential for public health effects resulting from the consumption of food crops irrigated with recycled water was analyzed in a 1998 study completed by the Monterey County Water Recycling Projects Water Quality and Operations Committee (MCWRP, 1998). The Recycled Water Food Safety Study presented sampling data for microorganisms of public health concern for both the Title 22 disinfected recycled water produced by the Monterey County Water Recycling Projects and other Title 22 disinfected recycled water producers in California. The 1998 study concluded that the recycled water studied did not contain viable microorganisms of public health concern and further outlined the natural barriers to the transfer of living organisms and organic molecules from irrigation water into plant tissues. The cell walls of roots that absorb and transport water to the edible tissues of crops act as a filter for these organisms and molecules.

Non-regulated constituents, or microconstituents and personal care products described above in Section 3.4.1, are a wide variety of chemicals used by society that are assumed to be present in the influent streams of the member agency WWTPs (please also see Appendix 3.4A). Residues of these inputs have been measured at other WWTPs around the country using similar treatment processes and are assumed to be present in the member agencies recycled water streams. As was described above in Section 3.4.1, methods for measuring microconstituents in recycled water have not been established by the USEPA According to the Recycled Water Policy (discussed

above in Section 3.4.2), SWRCB in consultation with CDPH, will convene a "blue-ribbon" advisory panel to guide future actions relating to constituents of emerging concern (SWRCB, 2009). SWRCB will actively manage the panel; each panelist will have extensive experience as a principal investigator in their respective areas of expertise. The panel will review the scientific literature and, within one year from its appointment, will submit a report to SWRCB and CDPH describing the current state of scientific knowledge regarding the risks of emerging constituents to public health and the environment.

Within six months of receipt of the panel's report, SWRCB, in coordination with CDPH, will hold a public hearing to consider recommendations from staff and will endorse the recommendations, as appropriate, after making any necessary modifications. The panel or a similarly constituted panel will update this report every five years. Each report shall recommend actions that the State should take to improve our understanding of emerging constituents and, as may be appropriate, to protect public health and the environment. Permits for recycled water projects shall be consistent both with any CDPH recommendations to protect public health and with any actions by SWRCB taken pursuant to paragraph 10(b)(2).

Although there are currently no testing methods or monitoring requirements developed for PPCPs, many sanitation districts have started public outreach programs aimed at reducing the amount of pharmaceuticals that are sent to the wastewater system. For example, the California Association of Sanitation Agencies began a campaign in the fall of 2008 to coordinate special areas state-wide where the public could drop-off their old or excess medications. The campaign educated the public about the benefits of utilizing a drop-off location instead of flushing them down the toilet, which had been an accepted practice. The Member agencies will participate and coordinate with these programs as part of their regular public outreach programs for pollution prevention.

No Project Alternative

The proposed project would not be implemented under the No Project Alternative, therefore there would be no change in existing conditions. 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 1,067 AFY of recycled water would be available from projects implemented by Member Agencies on an individual basis (see Table 3.4-7).

LGVSD/NMWD

No project would be implemented under No Action Alternative, therefore no impact would occur.

Novato SD/NMWD, SCVSD, Napa SD

Under the No Action Alternative, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. Recycled water would comply with California Code of Regulations (CCR) Title 22 requirements for tertiary treated recycled water. Therefore, potential impacts related to public health would be less than significant.

Phase 1 (Project Level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 4.3 mgd of tertiary capacity, and 65 AF of storage. This would provide 3,755 AFY of recycled water for urban, agricultural and environmental enhancement uses. 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 3.8 mgd of tertiary capacity, and no additional storage. This would provide 2,688 AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality impacts 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 by Member Agency is provided below.

LVGSD/NMWD, Novato SD/NMWD, SCVSD, Napa SD

Under Phase 1, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. Please refer to Appendix 3.4B for a summary list of potential recycled water users in the LGVSD/NMWD service area. Recycled water would comply with California Code of Regulations (CCR) Title 22 requirements for tertiary treated recycled water. Therefore, potential impacts related to public health would be less than significant.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, 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. This would provide 6,655 AFY of recycled water for urban, agricultural and environmental enhancement uses. 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. This would provide 5,588 AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality impacts associated with 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.

LVGSD/NMWD, Novato SD/NMWD, SCVSD, Napa SD

Under the No Action Alternative, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. Recycled water would comply with California Code of Regulations (CCR) Title 22 requirements for tertiary treated recycled water. Therefore, potential impacts related to public health would be less than significant.

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. This would provide 11,250 AFY of recycled water for urban, agricultural and environmental enhancement uses. 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 provide 10,183AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality impacts associated with 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.

LVGSD/NMWD, Novato SD/NMWD, SCVSD, Napa SD

Under the No Action Alternative, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. Recycled water would comply with California Code of Regulations (CCR) Title 22 requirements for tertiary treated recycled water. Therefore, potential impacts related to public health would be less than significant.

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. This would provide 12,761 AFY of recycled water for urban, agricultural and environmental enhancement uses. 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. This would provide 11,694 AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality 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.

LVGSD/NMWD, Novato SD/NMWD, SCVSD

Under the No Action Alternative, each Member Agency would deliver the amount of recycled water within their service area identified in Table 3.4-7. Recycled water would comply with California Code of Regulations (CCR) Title 22 requirements for tertiary treated recycled water. Therefore, potential impacts related to public health would be less than significant.

Napa SD

No additional supplies would be delivered by Napa SD under Alternative 3. Therefore, impacts relating to public health would be equivalent to those identified under Alternative 2.

Mitigation Measures

No additional mitigation measures are required.

Impact 3.4.4: Agricultural Uses. The proposed project would offset the use of potable water supplies for agricultural irrigation. Recycled water quality could have the potential to affect crop production. (Less than Significant)

The University of California Division of Agriculture and Natural Resources study described above in Section 3.4.1 examined the quality of Napa SD's recycled water and its appropriateness for vineyard applications. The study concluded that Napa SD recycled water is satisfactory for vineyards with respect to salinity, chloride, sodium, boron, calcium to magnesium ratio, 24 trace elements (mostly metals), nitrogen, phosphorus, and potassium. The study also concluded that long-term salinity accumulation is not expected to occur at a significant level when using Napa SD recycled water given the leaching effect generated by observed average annual rainfall levels in the action area. The findings presented for the suitability of using Napa SD recycled water supplies for vineyard irrigation are also assumed to apply to the other member agencies recycled water supplies given similar average annual rainfall levels, soil conditions, and recycled water quality treated consistent with Title 22 requirements. Recycled water is already commonly used on vineyards and other agricultural uses without demonstrable adverse effects to agricultural production. Therefore, impacts are considered less than significant. A discussion of water quality relative to the NBWA and UC Division of Agriculture guidelines for irrigation with recycled water is provided below for each of the Alternatives under consideration.

No Project Alternative

The proposed project would not be implemented under the No Project Alternative, therefore there would be no change in existing conditions. 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 1,067 AFY of recycled water would be available from projects implemented by Member Agencies on an individual basis (see Table 3.4-7). A discussion of impacts for each Member Agency is provided below.

LGVSD/NMWD

No project would be implemented under No Action Alternative, therefore no impact would occur.

Novato SD/NMWD

Under the No Project Alternative/No Action Alternative, Novato SD would deliver 193 AFY of tertiary treated recycled water to the Novato North Service Area. Novato SD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA. This impact would be less than significant.

SVCSD

Under the No Action Alternative, SVCSD would deliver 874 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project and additional tertiary treated recycled water to the Napa Salt Marsh Restoration Project. As shown in Table 3.4-4, the SVCSD WWTP effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA, with the exception of sodium, which is higher than the guideline. However, specific conductance, SAR and TDS are within the recommended guideline range established by the NBWA, and SVCSD effluent, which is currently used within its service area for vineyard irrigation, would not adversely affect vineyards, other agricultural uses, or landscaping areas. Therefore, potential impacts would be less than significant.

Napa SD

No project would be implemented under 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 4.3 mgd of tertiary capacity, and 65 AF of storage. This would provide 3,755 AFY of recycled water for urban, agricultural and environmental enhancement uses.

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 3.8 mgd of

tertiary capacity, and no additional storage. This would provide 2,688 AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality impacts 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 by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would deliver 202 AFY of tertiary treated recycled water to the Hamilton Field urban areas in southern Novato. As shown in Table 3.4-2, the LGVSD WWTP effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA. Therefore, impacts would be less than significant.

Novato SD/NMWD

Under Phase 1, Novato SD would deliver 542 AFY of tertiary treated recycled water to the North and Central Novato Service Areas. As shown in Table 3.4-3, Novato SD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA. Therefore, impacts would be less than significant.

SVCSD

Under Phase 1, SVCSD would deliver 873 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project, and additional tertiary treated recycled water to the Napa Salt Marsh Restoration Area[2]. As shown in Table 3.4-4, the SVCSD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA, with the exception of sodium. Sodium concentrations presented in Table 3.4-4 for the SVCSD recycled water supply exceed the NBWA recycled water use guidelines.

Average sodium concentrations observed in the 2006 study by the UC Division of Agriculture exceeded 5.0 meq/L or 115 mg/L, which is greater than the average of 66 mg/L identified for SVCSD. The study determined that sodium concentration of 115 mg/L did not to generate an adverse affect on vineyard production over the long term. The 2006 UC Division of Agriculture study noted that at this level negative effects associated with sodium accumulation in the root zone could be prevented by making calcium “available to the roots through the application of gypsum or by acidifying soils high in residual lime” (UC Division of Agriculture and Natural Resources 2006). Therefore, potential impacts are considered less than significant.

[2] As described in Chapter 2, Project Description, the amount of water to be delivered to the Napa Salt Marsh Restoration Area is currently unknown.

Napa SD

Under Phase 1, Napa SD would deliver 2,137 AFY of tertiary treated recycled water to the MST Creeks Area Project. As shown in Table 3.4-5, the Napa SD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA, with the exception of chlorine residual, sodium adsorption ratio, and specific conductance. Chlorine residual and specific conductance exceed the NBWA guidelines but have no recommended maximum level set by the USEPA or the UC Division of Agriculture. The observed sodium adsorption levels exceed the recommended levels set by the UC Division of Agriculture, but the 2006 suitability study for Napa SD recycled water determined that average annual rainfall in the action area was sufficient to leach out sodium that might accumulate in the soil profile through recycled water irrigation. Therefore, potential impacts are considered less than significant.

Alternative 1: Basic System (Program level)

The impacts associated with the Basic System would be equivalent to the impacts discussed for Phase 1 above in addition to the following impacts. As a whole, the projects proposed as a part of Alternative 1would further increase the total land area being irrigated with recycled water compared to Phase 1. This impact is considered less than significant over the long-term.

LGVSD/NMWD

Under the Basic System, there would be no additional recycled water served by LGVSD when compared to Phase 1. The impact discussion for LGVSD under Phase 1 is also applicable for the Basic System.

Novato SD/NMWD

Under the Basic System, there would be no additional recycled water served by Novato SD when compared to Phase 1. The impact discussion for Novato SD under Phase 1 is also applicable for the Basic System.

SVCSD

Under the Basic System, SVCSD would serve an additional 1,846 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project when compared to Phase 1. As shown in Table 3.4-4, the SVCSD recycled water supply has sodium, sodium adsorption ratio, and specific conductance levels that exceed the NBWA and UC Division of Agriculture guidelines for irrigation with recycled water. However, as discussed above for Phase 1, the SVCSD effluent sodium levels presented in Table 3.4-4 would not adversely affect vineyards, other agricultural areas, and landscaping areas. Specific conductance has no recommended maximum level set by the USEPA or the UC Division of Agriculture, and the values recorded at the SVCSD WWTP fall within the slight to moderate range of the NBWA guidelines. This impact is considered less than significant relative to both No Action/No Project baselines.

Napa SD

Under the Basic System, Napa SD would serve 1,055 AFY of tertiary treated recycled water to the Carneros East Area and the Napa Salt Marsh Restoration Area[3] when compared to Phase 1. To serve this demand, Napa SD would increase tertiary treatment capacity by 3.5 mgd over the Phase 1 capacity. As shown in Table 3.4-6, the Napa SD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA, with the exception of chlorine residual, sodium adsorption ratio, and specific conductance. Chlorine residual and specific conductance, exceed the NBWA guidelines but have no recommended maximum level set by the USEPA or the UC Division of Agriculture. The observed sodium adsorption levels exceed the recommended levels set by the UC Division of Agriculture, but the 2006 suitability study for Napa SD recycled water determined that average annual rainfall in the action area was sufficient to leach out sodium that might accumulate in the soil profile through recycled water irrigation. The observed sodium and sodium adsorption levels would not adversely affect vineyards, other agricultural areas, and landscaping areas. This impact is considered less than significant relative to both No Action/No Project baselines.

Alternative 2: Partially Connected System (Program level)

The impacts associated with the Partially Connected System would be equivalent to the impacts discussed for the Basic System above in addition to the following impacts. As a whole, the projects proposed as a part of the Partially Connected System would further increase the total land area being irrigated with recycled water compared to the Basic System. This impact is considered less than significant over the long-term.

LGVSD/NMWD

Under the Partially Connected System, LGVSD would serve 207 AFY of tertiary treated recycled water to the Peacock Gap Golf Course when compared to the Basic System. As shown in **Table 3.4-2**, the LGVSD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA. To serve demand in its service area, LGVSD would increase its tertiary treatment capacity by 0.8 mgd over the Basic System capacity. It is anticipated that as tertiary treatment capacity is expanded, observed constituent levels in the treatment plant's effluent stream will decrease (SCWA & Reclamation 2008). This impact is considered less than significant.

Novato SD/NMWD

Under the Partially Connected System, Novato SD would serve 1,070 AFY of tertiary treated recycled water to the Novato South Service Area and 968 AFY to the Sears Point Service Area when compared to the Basic System. As shown in Table 3.4-3, the Novato SD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA. To serve demand in its service area, Novato SD would increase tertiary treatment capacity by 3.9 mgd over

[3] As described in Chapter 2, Project Description, the amount of water to be delivered to the Napa Salt Marsh Restoration Area is currently unknown.

the Basic System capacity. It is anticipated that as tertiary treatment capacity is expanded, observed constituent levels in the treatment plant's effluent stream will decrease (SCWA & Reclamation 2008). This impact is considered less than significant.

SVCSD

Under the Partially Connected System, SVCSD would serve 1,662.5 AFY of tertiary treated recycled water to the Southern Sonoma Valley Service Area when compared to the Basic System. As shown in Table 3.4-4, the SVCSD recycled water supply has sodium, sodium adsorption and specific conductance levels that exceed the NBWA and UC Division of Agriculture guidelines for irrigation with recycled water. The sodium adsorption ratio levels presented in Table 3.4-4 for SCVWD effluent are lower than the values presented for Napa SD. As was noted in the 2006 Specific UC Division of Agriculture, average annual rainfall in the action area is sufficient to support the leaching of irrigation supplied sodium out of the soil profile, which would minimize the potential for an adverse affect on vineyards. This EIR/EIS assumes rainfall would also minimize the adverse effect on other agricultural and landscaping areas irrigated with recycled water. Specific conductance has no recommended maximum level set by the USEPA or the UC Division of Agriculture, and the values recorded at the SVCSD WWTP fall within the slight to moderate range of the NBWA guidelines. This impact is considered than significant.

Napa SD

Under the Partially Connected System, Napa SD would serve an additional 385 AFY of tertiary treated recycled water to the Carneros East Area, an additional 689 AFY to the MST Area, and 155 AFY to the lands close to the WWTP when compared to the Basic System. As shown in **Table 3.4-6,** the Napa SD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and from the NBWA, with the exception of chlorine residual, sodium adsorption ratio, and specific conductance. Chlorine residual and specific conductance, exceed the NBWA guidelines but have no recommended maximum level set by the USEPA or the UC Division of Agriculture. The observed sodium adsorption levels exceed the recommended levels set by the UC Division of Agriculture, but the 2006 suitability study for Napa SD recycled water determined that average annual rainfall in the action area was sufficient to leach out sodium that might accumulate in the soil profile as a part of recycled water irrigation. To serve demand in its service area, Napa SD would increase tertiary treatment capacity by 3.7 mgd over the Alternative 1 levels. It is anticipated that as tertiary treatment capacity is expanded, observed constituent levels in the effluent stream will decrease (SCWA & Reclamation 2008). This impact is considered less than significant.

Alternative 3: Fully Connected System (Program level)

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above in addition to the following impacts. As a whole, the projects proposed as a part of the Partially Connected System would further increase the total land area irrigated with recycled water compared to the Partially Connected System. This impact is considered less than significant over the long-term.

LGVSD/NMWD

Under the Fully Connected System, there would be no additional recycled water served by LGVSD when compared to the Partially Connected System. The impact discussion for LGVSD under the Partially Connected System is also applicable for the Fully Connected System.

Novato SD

Under the Fully Connected System, Novato SD would serve 1,587 AFY of tertiary recycled water to the Southern Sonoma Valley Service Area compared to the Partially Connected System. As shown in Table 3.4-3, the Novato SD WWTP tertiary treated effluent currently meets the water quality guidelines for the use of recycled water by the USEPA, the 2006 study by the UC Division of Agriculture, and the NBWA. To serve demand in its service area, Novato SD would increase tertiary treatment capacity by 4.9 mgd over the Partially Connected System. It is anticipated that as tertiary treatment capacity is expanded, observed constituent levels in the treatment plant's effluent stream will decrease (SCWA & Reclamation 2008). This impact is considered less than significant.

SVCSD/NMWD

Under the Fully Connected System, SVCSD would serve 1,511 AFY of tertiary recycled water to the Central Sonoma Valley Service area and would not serve any recycled water to the Southern Sonoma Valley Service Area when compared to the Partially Connected System. Under this alternative, the Southern Sonoma Valley Service Area would be served by Novato SD instead of SVCSD.

The SVCSD recycled water supply has sodium, sodium adsorption, and specific conductance levels that exceed the NBWA and UC Division of Agriculture guidelines for irrigation with recycled water. The sodium adsorption levels presented in Table 3.4-4 for SCVWD effluent are lower than the values presented for Napa SD. As was noted in the 2006 Specific UC Division of Agriculture, average annual rainfall in the action area is sufficient to support the leaching of irrigation supplied sodium out of the soil profile, which would minimize the potential for an adverse affect on vineyards. This EIR/EIS assumes rainfall would also minimize the adverse effect on other agricultural and landscaping areas irrigated with recycled water. Specific conductance has no recommended maximum level set by the USEPA or the UC Division of Agriculture, and the values recorded at the SVCSD WWTP fall within the slight to moderate range of the NBWA guidelines. This impact is considered than significant.

Napa SD

Under the Fully Connected System, there would be no additional recycled water served by Napa SD when compared to the Partially Connected System. The impact discussion for Napa SD under the Partially Connected System is also applicable for the Fully Connected System.

Mitigation Measures

No additional mitigation measures are required.

Impact 3.4.5: Secondary Effects to Groundwater Quality. Irrigation with recycled water could contribute to loading of specific constituents to groundwater. (Less than Significant)

Irrigation with reclaimed water could contribute to loading of specific constituents to groundwater supplies in the vicinity of irrigation sites. Typical groundwater quality concerns regarding the use of reclaimed water include metals, microorganisms, TDS, and nitrates. Metals are typically removed from water in soils through a complex process of adsorption, precipitation, ion exchange, and complexation. Microorganisms, including bacteria and viruses, are removed from water through filtration, adsorption, desiccation, predation, disinfection, and exposure to other adverse conditions. Bacteria, including coliform, are removed by filtration through the soil; in general, there is greater filtration of bacteria in fine-grained material than in course-grained material. Studies of wastewater application indicated that coliforms are normally removed after five feet of percolation through the soil (USEPA, 1981).

The drinking water maximum contaminant level for nitrate (as nitrogen) is 10 mg/L. Nitrate is absorbed by plants, and is readily immobilized in the unsaturated zone through absorption. However, once in the ground water, nitrate is relatively stable and mobile. The level of nitrate present in NBWRP reclaimed water would typically be less than the nitrate requirement of crops, and would be expected to be readily absorbed. Therefore, the potential for nitrate loading to affect groundwater quality within the area of irrigation is considered low.

The TDS levels in recycled water supplies are anticipated to average approximately 400 to 600 mg/L per liter (mg/L). This level is generally equivalent to or below groundwater TDS within the proposed irrigation areas. Therefore, irrigation with recycled water is not anticipated to significantly affect TDS levels in local groundwater supplies. The SWRCB Recycled Water Policy encourages every region in California to develop a salt/nutrient management plan by 2014 that is sustainable on a long-term basis and that provides California with clean, abundant water. These plans shall be consistent with the Department of Water Resources' (DWR) Bulletin 160, as appropriate, and shall be locally developed, locally controlled and recognize the variability of California's water supplies and the diversity of its waterways.

Mitigation Measures

No additional mitigation measures are required.

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. (Less than Significant with Mitigation)

Recycled water storage would be provided at individual WWTP locations for distribution, as well as at individual user properties. WWTP sites currently store treated effluent onsite during non-discharge months, as required by NPDES permit limitations. Existing and proposed storage facilities are lined storage ponds or constructed with local clay soils with a very low permeability.

These ponds are designed with adequate freeboard to accommodate storm events, and the potential for impacts to surface or groundwater would be less than significant.

Recycled water use for agricultural irrigation may include storage of recycled water in user storage ponds in the MST Area and Los Carneros area. Under Phase 1, this would include ponds at the Napa Valley Country Club. In addition, agricultural users may elect to use existing storage facilities for storage of recycled water onsite on a willing user basis. Aerial review of storage ponds identified 259 storage ponds occurring within the MST and Los Carneros areas. Of these, 231 storage ponds are located "off-stream"; they have been constructed as storage ponds away from stream channels, do not directly receive stream flow, and are maintained with appropriate freeboard. Under Title 22, discharge of recycled water to surface waters is prohibited, and impoundments must maintain a 100 foot setback from domestic supply wells. Therefore, storage ponds must maintain adequate freeboard to reduce potential for releases.

The State Recycled Water Policy clarifies that incidental runoff from ponds containing recycled water is consistent with the policy if the overflows are the result of a 25-year, 24-hour storm event or greater, and notification of the discharge is provided to the local RWQCB Executive Officer. In addition, compliance with Title 22 would reduce the potential for storage ponds to impact surface water and groundwater quality to less than significant.

Twenty ponds were identified as "on-stream", i.e., are created by installation of dams within a water course to provide storage, with eventual overflow directly back to the stream channel. An additional 8 ponds were identified as potentially on-stream. For these 28 ponds, discussions with RWQCB would be necessary to allow for recycled water storage in these facilities. It is anticipated that specific operational standards, such as pumping on-stream ponds dry prior to the onset of winter rains, would be required in order to ensure storage in compliance with Title 22.

No Project Alternative

The proposed project would not be implemented under the No Project Alternative; therefore there would be no change in existing conditions. 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 1,067 AFY of recycled water would be available from projects implemented by Member Agencies on an individual basis (see Table 3.4-7). This would include a limited amount of storage at existing facilities. No additional storage would be implemented under the No Action Alterative. A discussion of impacts for each Member Agency is provided below.

LGVSD/NMWD

No project would be implemented under No Action Alternative within the LGVSD service area; therefore no impact would occur.

Novato SD/NMWD

Under the No Action Alternative, Novato SD would deliver 193 AFY of tertiary treated recycled water to the Novato North Service Area. System storage would be provided through retrofit of the existing 0.5 MG Plum Street storage tank. This above ground tank is self contained, and would be retrofitted to provide diurnal storage. Therefore, this facility would not have the potential to impact groundwater quality. This impact would be less than significant.

SVCSD

Under the No Action Alternative, SVCSD would deliver 873 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project and additional tertiary treated recycled water to the Napa Salt Marsh Restoration Project. SVCSD would construct an additional 65 AFY of storage at its existing WWTP. Construction of the reservoir would convert the site from current agricultural use to open water storage. The reservoir would be compacted at the bottom and lined using synthetic liners such as polyethylene liner. The compaction and lining would comprise the bottom six feet of the reservoirs and would act as a sealant against infiltration of water. The lining would have low permeability allowing for only minor infiltration of stored water to maximize efficiency of the reservoir. Infiltration is expected to occur only at the beginning when the reservoir is brought into operation. The amount of the groundwater actually infiltrating to subsurface levels and thus affecting the groundwater flow patterns or quality would be negligible, particularly when compared to the overall groundwater in the entire Sonoma Valley basin. The impact would be less than significant.

Napa SD

Under the No Action Alternative, no projects would be implemented in the Napa SD. Therefore, potential impacts would be less than significant.

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 4.3 mgd of tertiary capacity, and 65 AF of storage. This would provide 3,755 AFY of recycled water for urban, agricultural and environmental enhancement uses.

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 3.8 mgd of tertiary capacity, and no additional storage. This would provide 2,688 AFY of recycled water for urban, agricultural and environmental enhancement uses.

The water quality impacts 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 by Member Agency is provided below.

LGVSD/NMWD

Under Phase 1, LGVSD would deliver 202 AFY of tertiary treated recycled water to the Hamilton Field urban areas in southern Novato. No additional storage would be constructed. Therefore, impacts would be less than significant.

Novato SD/NMWD

Under Phase 1, Novato SD would deliver 542 AFY of tertiary treated recycled water to the North and Central Novato Service Areas. System storage would be provided through retrofit of the existing 0.5 MG Plum Street storage tank and the existing 0.5 MG Reservoir Hill Tanks. These concrete tanks are self contained, and would be retrofitted to provide for recycled water diurnal storage. Because these concrete structures are isolated from groundwater, these facilities would not have the potential to impact groundwater quality. This impact would be less than significant.

SVCSD

Under Phase 1, SVCSD would deliver 874 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project, and additional tertiary treated recycled water to the Napa Salt Marsh Restoration Area[4]. SVCSD would construct an additional 65 AFY of storage at its existing WWTP. Impacts would be identical to those discussed above for the No Action Alternative.

Napa SD

Under Phase 1, Napa SD would deliver 2,137 AFY of tertiary treated recycled water to the MST Creeks Area Project. Implementation of Phase 1 would include storage of recycled water on individual user properties. At the Napa Valley Country Club, storage would be provided in existing onsite ponds that were constructed in 1991-1992, and were constructed with a bentonite clay liner to minimize any loss of water through infiltration (Zion, personal communication, 2008). Storage would be in compliance with Title 22, which requires a 100 foot setback for impoundments from any domestic supply well. Therefore, no impacts to groundwater conditions are anticipated. The storage ponds are off-stream and self-contained, and currently store rainwater and runoff from the golf course. Under Title 22, discharge of recycled water from these ponds to surface waters is prohibited. Individual users are required to ensure adequate freeboard in off-stream ponds to accommodate winter runoff into the ponds. As required in **Mitigation Measure 3.4.6a,** individual ponds would be reviewed by Member Agencies and Cooperating Agencies for compliance with Title 22 requirements and the SWRCB Draft Recycled Water Policy, as required by each Member Agency's Master Recycling Permit.

In addition to the Napa Valley County Club ponds, Table 3.4-7 summarizes existing ponds located within 500 feet of proposed pipeline routes for the MST Local Project Option 1 and Option 2, as well as ponds within the MST Phase 1 project. These represent individual user

[4] As described in Chapter 2, Project Description, the amount of water to be delivered to the Napa Salt Marsh Restoration Area is estimated between 2,000 and 3,000 AFY.

storage ponds that could be used to store recycled water for agricultural irrigation purposes. As shown in **Table 3.4-8,** the majority of identified ponds are off-stream ponds, and would provide storage in compliance with Title 22 regarding release of recycled water to streams. As previously noted, individual ponds would be reviewed by Member Agencies and Cooperating Agencies for compliance with Title 22 requirements and the SWRCB Draft Recycled Water Policy, as required by each agency's Master Recycling Permit.

TABLE 3.4-8
STORAGE PONDS IN THE MST AREA

Location	Incremental Number of Ponds	Offstream	Onstream
MST Local Project Option 1	16	15	1
MST Local Project Option 2	9	9	0
MST Local Option Subtotal	*25*	*24*	*1*
MST Phase 1	30	29	1
Total MST Area	*55*	*53*	*2*

Alternative 1: Basic System (Program level)

The impacts associated with the Basic System would be equivalent to the impacts discussed for Phase 1 above in addition to the following impacts. As a whole, the projects proposed as a part of Alternative 1 would further increase the amount of WWTP storage by 955 AFY, and may increase the number of user storage ponds. This impact is considered less than significant.

LGVSD/NMWD

Under the Basic System, there would be no additional recycled water served or storage required by LGVSD when compared to Phase 1. The impact discussion for LGVSD under Phase 1 is also applicable for the Basic System.

Novato SD/NMWD

Under the Basic System, there would be no additional recycled water served or storage required by Novato SD when compared to Phase 1. The impact discussion for Novato SD under Phase 1 is also applicable for the Basic System.

SVCSD

Under the Basic System, SVCSD would serve an additional 1,845 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project when compared to Phase 1. Phase 1 would also include construction of an additional 1,020 AFY of storage at the SVCSD WWTP. Potential impacts to groundwater and surface water supplies would be equivalent to those identified for Phase 1.

Napa SD

Under the Basic System, Napa SD would serve 1,055 AFY of tertiary treated recycled water to the Carneros East Area the Napa Salt Marsh Restoration Area[5] when compared to Phase 1. No additional storage at the WWTP would be constructed. However, implementation of Phase 1 may include storage of recycled water on individual user properties on a willing user basis. **Table 3.4-9** summarizes the existing ponds located within 500 feet of proposed pipeline routes for the Carneros Area. As shown in Table 3.4-9, the majority of ponds are off-stream ponds and self contained. Under Title 22, discharge of recycled water from these ponds to surface waters is prohibited. Individual users are required to ensure adequate freeboard in off-stream ponds to comply with the SWRCB Draft Recycled Water Policy. Individual ponds would be reviewed by Member Agencies and Cooperating Agencies for compliance with Title 22 requirements and the SWRCB Draft Recycled Water Policy, as required by each agency's Master Recycling Permit.

TABLE 3.4-9
POTENTIAL STORAGE PONDS IN THE CARNEROS AREA

Location	Total Number of Ponds	Off-stream	On-stream	Undetermined
Carneros Area	204	178	18	8

For the 28 ponds identified as on-stream, discussions with RWQCB would be necessary to allow for recycled water storage in these facilities. It is anticipated that specific operational standards, such as pumping on-stream ponds dry prior to the onset of winter rains, would be required in order to ensure storage in compliance with Title 22.

Alternative 2: Partially Connected System (Program level)

The impacts associated with the Partially Connected System would be equivalent to the impacts discussed for the Basic System above in addition to the following impacts. Under the Partially Connected System an additional 1,200 AF of WWTP storage would be required, and the number of user storage ponds may be increase compared to the Basic System. This impact is considered less than significant.

LGVSD/NMWD

Under the Partially Connected System, LGVSD would serve 207 AFY of tertiary treated recycled water to the Peacock Gap Golf Course when compared to the Basic System. No additional storage would be required. Therefore, impacts would be less than significant.

Novato SD/NMWD

Under the Partially Connected System, Novato SD would serve 1070 AFY of tertiary treated recycled water to the Novato South Service Area and 968 AFY to the Sears Point Service Area

[5] As described in Chapter 2, Project Description, the amount of water to be delivered to the Napa Salt Marsh Restoration Area is estimated at 2,000 to 3,000 AFY under Phase 1.

when compared to the Basic System. No additional storage would be required. Therefore, impacts would be less than significant.

SVCSD

Under the Partially Connected System, SVCSD would serve 1,662.5 AFY of tertiary treated recycled water to the Southern Sonoma Valley Service Area when compared to the Basic System. This would require an additional 1,200 AF of storage at the SVCSD WWTP when compared to the Basic System. Design of storage ponds at the WWTP would be consistent with those proposed under Phase 1, and would include liner installation and provision of adequate freeboard. Therefore, potential impacts to surface water and groundwater resources would be less than significant.

Napa SD

Under the Partially Connected System, Napa SD would serve an additional 385 AFY of tertiary treated recycled water to the Carneros East Area and Salt Ponds, an additional 689 AFY to the MST Area, and 155 AFY to the lands close to the WWTP when compared to the Basic System. Additional storage of recycled water at user storage ponds may occur on a willing user basis. Impacts would be similar to those identified for the Basic System.

Alternative 3: Fully Connected System (Program level)

The impacts associated with the Fully Connected System would be equivalent to the impacts discussed for the Partially Connected System above in addition to the following impacts. As a whole, the projects proposed as a part of the Partially Connected System would have the same amount of WWTP storage compared to the Partially Connected System. Additional storage of recycled water at user storage ponds may occur on a willing user basis. Impacts would be similar to those identified for the Partially Connected System. This impact is considered less than significant over the long-term.

LGVSD/NMWD

Under the Fully Connected System, there would be no additional recycled water served by LGVSD when compared to the Partially Connected System. The impact discussion for LGVSD under the Partially Connected System is also applicable for the Fully Connected System.

Novato SD/NMWD

Under the Fully Connected System, Novato SD would serve 1,587 AFY of tertiary recycled water to the Southern Sonoma Valley Service Area compared to the Partially Connected System. No additional storage facilities would be required, although additional storage of recycled water at user storage ponds may occur on a willing user basis. Therefore, impacts would be equivalent to those identified under the Partially Connected System.

SVCSD

Under the Fully Connected System, SVCSD would serve 1,511 AFY of tertiary recycled water to the Central Sonoma Valley Service area and would not serve any recycled water to the Southern Sonoma Valley Service Area when compared to the Partially Connected System. No additional storage facilities would be required, although additional storage of recycled water at user storage ponds in the Central Sonoma Valley Service may occur on a willing user basis.

Napa SD

Under the Fully Connected System, there would be no additional recycled water served by Napa SD when compared to the Partially Connected System. The impact discussion for Napa SD under the Partially Connected System is also applicable for the Fully Connected System.

Mitigation Measures

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.

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.

Impact 3.4.7: Pipeline Rupture. Pipeline ruptures could generate accidental releases of recycled water. (Less than Significant Impact)

Pipeline ruptures as a result of an earthquake or other unforeseen events could potentially generate a discharge of recycled water to surface water bodies within the action area.

The design and construction of new pipelines will incorporate features and operational procedures to minimize the risk of water quality impacts in the event of emergency pipeline rupture, including:

- Inspections of all pipelines for adherence to construction standards;
- Leak detection system; and
- Placement of block valves to allow sections of pipelines to be shut off in the event a leak is detected.

In addition, the recycled water conveyed through pipelines developed as a part of the project alternatives would be treated to meet Title 22 disinfected tertiary requirements. Water quality

impacts to surface water bodies in the action area associated with a leak or spill from a recycled water pipeline would be considered less than significant.

No Project Alternative

No project would be implemented under the No Project Alternative, therefore no impact would occur.

No Action Alternative

Under the No Action Alternative, construction of new independent wastewater recycling projects within each service area would develop new recycled water conveyance pipelines that would incorporate the same safety measures that would be included in new pipelines developed by the project alternatives, described above in Impact 3.4.3. The effects generated by an emergency pipeline rupture under the No Project Alternative/No Action Alternative are anticipated to be less than significant.

Phase 1, Alternative 1, Alternative 2, and Alternative 3

All the action alternatives would incorporate the design features and operational procedures described above to minimize the risk of water quality impacts in the event of emergency pipeline ruptures. The amount of new pipeline construction associated with Phase 1, and the incremental amount associated with each alternative are presented in the impact discussion for **Impact 3.4.3: Short Term Construction Related Effects**. As described above, the design features and operational procedures would reduce the potential impact to water quality from pipeline ruptures to a less than significant level.

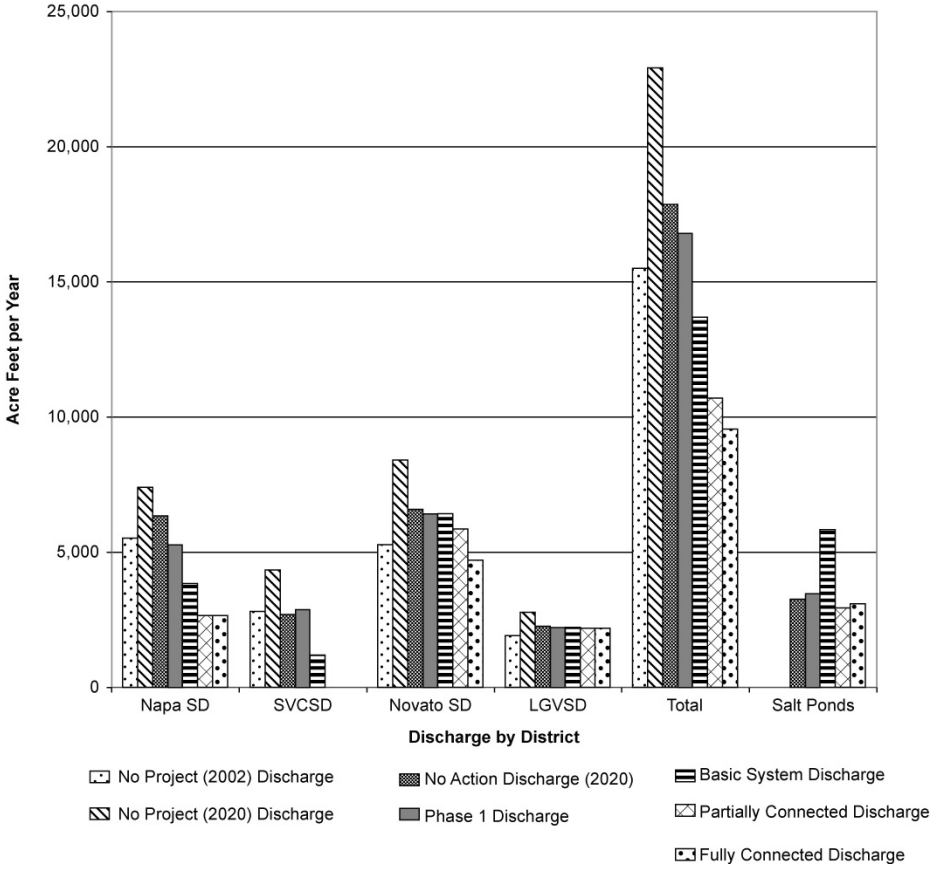
Mitigation Measures

No additional mitigation measures are required.

Impact 3.4.8: Reduced Discharge to Surface Water. The proposed project would result in reduced discharge from the WWTPs. (Beneficial Impact)

Each of the Action Alternatives would increase the use of recycled water within the action area for agricultural uses (vineyard irrigation, dairy/pasture, tree and row crops) and urban irrigation (including golf courses, parks, and general landscaping (medians and office parks)). The increased use of recycled water under each of the Action Alternatives would result in a reduction in discharge from each Member Agency's WWTP to sloughs, rivers, and eventually San Pablo Bay. Reduced discharge from the WWTPs when compared to the CEQA and NEPA baselines would have a beneficial impact on water quality. A summary of discharge by Member Agency for each alternative is provided in **Chart 3.4-2**.

CHART 3.4-2
DISCHARGE REDUCTION BY ALTERNATIVE FOR EACH MEMBER AGENCY



SOURCE: CDM, 2009, ESA, 2009.

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 1,067 AFY of recycled water would be available from projects implemented by Member Agencies on an individual basis.

It is estimated that WWTP inflow will increase over time, with a corresponding increase in discharge of treated effluent by the year 2020 (**Table 3.4-10**). Provision of 1,067 AFY of recycled water for use as irrigation and release of 3,460 AFY to the Napa Salt Ponds as envisioned under the No Action Alternative would reduce WWTP discharges, as shown in Table 3.4-10. Provision of this amount of recycled water would result in a discharge reduction of 4,860 AFY to receiving waters tributary to North San Pablo Bay at 2020, with approximately 3,460 AFY redirected to Napa Salt Ponds, depending upon year type. A discussion by Member Agency is provided below.

TABLE 3.4-10
COMPARISON OF NO PROJECT (2002, 2020) AND NO ACTION ALTERNATIVE – PROJECTED MONTHLY DISCHARGE (2020) (AFY)

	Napa SD	SVCSD	Novato SD	LGVSD	Total	Salt Ponds
No Project (2002)	5,515	2,805	5,267	1,906	15,492	0
No Project (2020) Discharge	7,402	4,334	8,406	2,768	22,911	0
2020 Discharge Increase	1,887	1,529	3,139	862	7,499	0
No Action (2020) Discharge	6,338	2,882	6,574	2,257	18,051	3,460
No Action (2020) Reduction	**(1,064)**	**(1,452)**	**(1,832)**	**(511)**	**(4,860)**	**+3,460**

SOURCE: CDM, 2009

LGVSD/NMWD

The No Action Alternative would not include any new recycled water facilities by LGVSD; however, future conditions would include development within the LGVSD service area consistent with approved General Plans, with corresponding increases in treated effluent discharge. Discharge to Miller Creek, and eventually San Pablo Bay, under future 2020 discharge conditions would increase by an estimated 862 acre-feet per year (AFY). Under the No Action Alternative, which considers implementation of a subset of recycled water projects, 2020 discharge conditions would increase by an estimated 511 AFY. This represents the future baseline discharge conditions, and no impacts would occur as a result from the NBWRP.

Novato SD/NMWD

Under the No Action Alternative, Novato SD would deliver 193 AFY of tertiary treated recycled water to the Novato North Service Area. Future conditions would include development within the Novato SD service area consistent with approved General Plans, with corresponding increases in treated effluent discharge. Discharge under future 2020 discharge conditions would increase by an estimated 3,139 AFY. Under the No Action Alternative, which considers implementation of a subset of recycled water projects, 2020 discharge conditions would increase by an estimated 1,832 AFY. This represents the future baseline discharge conditions, and no impacts would occur as a result from the NBWRP.

SVCSD

Under the No Action Alternative, SVCSD would deliver 874 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project. Future conditions would include development within the SVCSD service area consistent with approved General Plans, with corresponding increases in treated effluent discharge. Discharge under future 2020 discharge conditions would increase by an estimated 1,529 AFY. Under the No Action Alternative, which considers implementation of a subset of recycled water projects, 2020 discharge conditions would increase by an estimated 1,452 AFY. This represents the future baseline discharge conditions, and no impacts would occur as a result from the NBWRP.

Napa SD

The No Action Alternative, would not include any new recycled water deliveries by Napa. Future conditions would include development within the Napa service area consistent with approved General Plans, with corresponding increases in treated effluent discharge. Discharge under future 2020 discharge conditions would increase by an estimated 1,887 AFY. Under the No Action Alternative, which considers implementation of a subset of recycled water projects, 2020 discharge conditions would increase by an estimated 1,062 AFY. This represents the future baseline discharge conditions, and no impacts would occur as a result from the NBWRP.

Phase 1 (Project level)

Compared to existing conditions (CEQA Baseline), Phase 1 projects would include 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 4.3 mgd of tertiary capacity, and 65 AF of storage to provide 3,755 AFY of recycled water. This would result in a corresponding reduction in discharge. Analysis of Phase 1 recycled water use and corresponding changes in estimated discharge assumed 2020 inflow and discharge conditions for the WWTP, which include increased inflow over time. Implementation of Phase 1 projects would have an estimated 2020 discharge reduction of 6,121 AFY for all the WWTPs combined.

Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 2,688 AFY of recycled water, 28.9 miles of new pipeline, 961 HP of pumping capacity, treatment facilities providing 3.8 mgd of tertiary capacity, and 0 AF of additional storage. When implemented, Phase 1 would result in an estimated total discharge reduction of 1,073 AFY for all the WWTPs combined, compared to the No Action Alternative. (see **Table 3.4-11**).

Table 3.4-12 presents the anticipated Phase 1 change in discharge for each WWTP on a monthly basis, compared to both the CEQA Baseline and No Action Alternative (NEPA Baseline).

LGVSD/NMWD

Compared to existing conditions (CEQA baseline), Phase 1 would provide 202 AFY of recycled water, with a corresponding decrease in discharge. Analysis of Phase 1 recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, Phase 1 this would reduce 2020 discharge by an estimated 548 AFY.

TABLE 3.4-11
PHASE 1 DISCHARGE COMPARED TO
CEQA NO PROJECT AND NEPA NO ACTION BASELINE

	Napa SD	SVCSD	Novato SD	LGVSD	Total	Salt Ponds
No Project (2002)	5,515	2,805	5,267	1,906	15,492	0
No Project (2020) Discharge	7,402	4,334	8,406	2,768	22,911	0
Phase 1 Discharge	5,265	2,882	6,423	2,220	16,790	3,460
Phase 1 Discharge vs 2002 Discharge	**-250**	**+77**	**+1,156**	**+314**	**+1,298**	**+3,460**
Phase 1 Discharge vs 2020 Discharge	**-2,137**	**-1,452**	**-1,983**	**-548**	**-6,121**	**+3,460**
No Action Discharge (2020)	6,338	2,882	6,574	2,257	18,051	3,257
Phase 1 Discharge	5,265	2,882	6,423	2,220	16,790	3,460
Phase 1 Discharge NEPA Increment	**-1,073**	**+0**	**-151**	**-38**	**-1,261**	**+203**

SOURCE: CDM, 2009

TABLE 3.4-12
CHANGE IN MONTHLY WWTP DISCHARGE UNDER PHASE 1 (AFY)

	LGVSD		Novato SD		SVCSD		Napa SD	
	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)
January	51	0	157	0	121	0	70	0
February	46	0	142	0	110	0	63	0
March	50	-2	154	-3	53	0	-33	-103
April	36	-14	115	-25	-139	0	-538	-589
May	34	-18	111	-30	0	0	0	0
June	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0
September	0	0	78	-48	0	0	0	0
October	0	0	99	-38	0	0	0	0
November	47	-3	146	-5	-189	0	102	-381
December	50	-1	155	-2	122	0	70	0
Total	314	-38	1,157	-151	77	0	-267	-1,073

SOURCE: CDM, 2009.

Compared to the No Action Alternative (NEPA baseline), Phase I would result in the same reduction in discharge; however, when compared to the No Action Alternative, estimated net discharge reduction would be 38 AFY. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both CEQA and NEPA baselines.

Novato SD/NMWD

Compared to existing conditions (CEQA baseline), Phase 1 would provide 542 AFY of recycled water. Analysis of Phase 1 recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, Phase 1 this would reduce 2020 discharge by an estimated 1,983 AFY. Compared to the No Action Alternative (NEPA baseline), Phase 1 would reduce discharge by an estimated 151 AFY. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both CEQA and NEPA baselines. This reduction in discharge would have an incremental, but beneficial, impact to receiving water quality.

SVCSD

Compared to existing conditions (CEQA baseline), Phase 1 would provide 874 AFY of recycled water. Additionally, SVCSD would provide flows to the Napa Salt Ponds, of up to 3,460 AFY (depending upon year type). Analysis of Phase 1 recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, Phase 1 this would reduce 2020 discharge by an estimated 1,452 AFY. Compared to the No Action Alternative (NEPA baseline), Phase 1 would not reduce SVCSD discharge, as these projects would likely be implemented by SVCSD under the No Action Alternative.

This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both CEQA and NEPA baselines.

Napa SD

Compared to existing conditions (CEQA baseline), Phase 1 would provide 2,137 AFY of recycled water, with a corresponding reduction in discharge. Analysis of Phase 1 recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, Phase 1 would reduce 2020 discharge by an estimated 2,137 AFY. Compared to the No Action Alternative (NEPA baseline), Phase 1 would reduce Napa SD discharge by an estimated 1,073 AFY.

Therefore, Phase 1 would reduce current discharges to Napa River. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both CEQA and NEPA baselines.

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. **Table 3.4-13** provides a summary of discharge change by WWTP. The Basic System would result in a total discharge reduction of an estimated 1,806 AFY compared to the CEQA Baseline. Compared to 2020 discharge conditions, the Basic System would result in a total discharge reduction of 9,305 AFY from all of the WWTPs combined.

TABLE 3.4-13
BASIC SYSTEM DISCHARGE (2020) COMPARED TO CEQA NO PROJECT AND NEPA NO ACTION BASELINE

	Napa SD	SVCSD	Novato SD	LGVSD	Total	Salt Ponds
No Project (2002 Data)	5,515	2,805	5,267	1,906	15,492	0
No Project (2020) Discharge	7,402	4,334	8,406	2,768	22,911	0
Basic System Discharge	3,847	1,196	6,423	2,220	13,686	5,825
Basic System Discharge vs. 2002 Discharge	**-1,668**	**-1,609**	**+1,156**	**+314**	**-1,806**	**+5,825**
Basic System Discharge vs 2020 Discharge	**-3,555**	**-3,138**	**-1,983**	**-546**	**-9,305**	+5,825
No Action Discharge (2020)	6,338	2,693	6,574	2,257	17,863	3,257
Basic System Discharge	3,847	1,196	6,423	2,220	13,686	5,825
Basic System Discharge NEPA Increment	**-2,491**	**-1,497**	**-151**	**-38**	**-4,177**	**+2,568**

SOURCE: CDM, 2009

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 Basic System would result in a total discharge reduction of 4,177 AFY from all of the WWTPs combined, compared to the No Action Alternative (NEPA Baseline).

Table 3.4-14 presents the anticipated monthly change in discharge for each WWTP under the Basic System, compared to both existing conditions and the No Project/No Action Alternative. As a whole, the projects proposed as a part of the Basic System would further increase the use of recycled water in the action area, and further reduce the volume of treated effluent discharged by the WWTPs compared to the Phase 1 Implementation Plan.

LGVSD/NMWD

Under the Basic System, there would be no additional recycled water served by LGVSD when compared to Phase 1; therefore, there would be no change to the amount of treated wastewater discharged by LGVSD. The impact discussion for LGVSD under Phase 1 is also applicable for the Basic System.

TABLE 3.4-14
CHANGE IN MONTHLY WWTP DISCHARGE UNDER THE BASIC SYSTEM (AFY)

	LGVSD		Novato SD		SVCSD		Napa SD	
	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)
January	51	0	157	0	-612	-733	70	0
February	46	0	142	0	-375	-485	63	0
March	50	-2	154	-3	-396	-449	-1,010	-1,080
April	36	-14	115	-25	-139	0	-538	-589
May	34	-18	111	-30	0	0	0	0
June	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0
September	0	0	78	-48	0	0	0	0
October	0	0	99	-38	0	0	0	0
November	47	-3	146	-5	-189	0	-339	-822
December	50	-1	155	-2	103	-19	70	0
Total	314	-38	1,157	-151	-1,609	**-1,686**	-1,686	-2,491

SOURCE: CDM, 2009

Novato SD/NMWD

Under the Basic System, there would be no additional recycled water served by Novato SD when compared to Phase 1; therefore, there would be no change to the amount of treated wastewater discharged by Novato SD. The impact discussion for Novato SD under Phase 1 is also applicable for the Basic System.

SVCSD

Under the Basic System, SVCSD would serve an additional 1,845 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project service area when compared to Phase 1. Additional supplies would also be sent to the Napa Salt Ponds as available. This would provide a greater reduction in treated effluent discharge to San Pablo Bay. When compared to current (2002) conditions, this represents an estimated net reduction in discharge of 1,609 AFY. When incorporated into projected 2020 flow conditions, Phase 1 this would reduce 2020 discharge by an estimated 3,138 AFY. Therefore, Phase 1 would reduce current discharges to Schell Slough, Hudeman Slough and San Pablo Bay. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay.

Compared to the No Action (NEPA Baseline) discharge would be reduced by an estimated 1,497 AFY. Therefore, this Phase 1 change in discharge from the SVCSD WWTP would have an incremental, but beneficial, impact to receiving water quality under both CEQA and NEPA baselines.

Napa SD

Under the Basic System, Napa SD would serve 1,055 AFY of tertiary treated recycled water to the Carneros East Area and the Napa Salt Marsh Restoration Area, when compared to Phase 1. When compared to current (2002) conditions, this represents an estimated net reduction in discharge of 1,668 AFY. Phase 1 Analysis of recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP. When the offset of the addition of 1,055 AFY for irrigation is incorporated into projected 2020 flow conditions, discharge would be reduced by an estimated 3,555 AFY. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay.

Compared to the No Action (NEPA) baseline, the Basic System would reduce discharge by an estimated 2,491 AFY. Therefore, this change in discharge from the Napa SD WWTP would have an incremental, but beneficial, impact to receiving water quality under both CEQA and NEPA baselines.

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. Provision of this amount of recycled water would result in an estimated total discharge reduction of 4,821 AFY for all of the WWTPs (see **Table 3.4-15**).

TABLE 3.4-15
PARTIALLY CONNECTED SYSTEM DISCHARGE (2020) COMPARED TO CEQA NO PROJECT AND NEPA NO ACTION BASELINE

	Napa SD	SVCSD	Novato SD	LGVSD	Total	Salt Ponds
No Project (2002 Data)	5,515	2,805	5,267	1,906	15,492	0
No Project (2020) Discharge	7,402	4,334	8,406	2,768	22,911	0
Partially Connected Discharge	2,657	0	5,851	2,181	10,689	2,933
Partially Connected Discharge vs 2002 Discharge	**-2,875**	**-2,805**	**+584**	**+275**	**-4,821**	**+2,933**
Basic System Discharge vs 2020 Discharge	**-4,745**	**-4,334**	**-2,555**	**-587**	**-12,222**	**+2,993**
No Action Discharge (2020)	6,338	2,693	6,574	2,257	17,863	3,257
Partially Connected Discharge	2,657	0	5,581	2,181	10,689	2,933
Partially Connected Discharge NEPA Increment	**-3,681**	**-2,693**	**-723**	**-76**	**-7,174**	**-324**

SOURCE: CDM, 2009

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. Provision of this amount of recycled water would result in an estimated total discharge reduction of 7,174 AFY for all of the WWTPs (see Table 3.4-15).

Table 3.4-16 presents the anticipated monthly change in discharge for each WWTP under the Partially Connected System, compared to both existing conditions and the No Action Alternative. As a whole, the projects proposed as a part of the Partially Connected System would further increase the use of recycled water in the action area and further reduce the volume of treated effluent discharged by the WWTPs compared to the Basic System.

TABLE 3.4-16
CHANGE IN MONTHLY WWTP DISCHARGE UNDER THE PARTIALLY CONNECTED SYSTEM (AFY)

	LGVSD		Novato SD		SVCSD		Napa SD	
	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)
January	51	0	157	-1	-612	-733	-200	-270
February	46	0	142	-1	-375	-485	-837	-900
March	48	-3	148	-8	-396	-449	-1,030	-1,100
April	21	-29	26	-113	-139	0	-538	-589
May	16	-36	-93	-234	0	0	0	0
June	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0
September	0	0	-88	-215	0	0	0	0
October	0	0	3	-135	0	0	0	0
November	44	-5	138	-12	-603	-413	-339	-822
December	49	-2	152	-5	-680	-802	70	0
Total	275	-76	585	-723	-2,805	**-2,882**	**-2,875**	-3,681

SOURCE: CDM, 2009

LGVSD/NMWD

The Partially Connected System would provide an additional 207 AFY of recycled water when compared to the Basic System, with a corresponding reduction in discharge. Analysis of recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, implementation of the Partially Connected System would reduce estimated 2020 discharge by 587 AFY

Compared to the No Action Alternative (NEPA) baseline of 2020 discharge conditions, the Partially Connected System would slightly reduce discharge by 76 AFY. This would have a beneficial effect

with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both CEQA and NEPA baselines.

Novato SD/NMWD

Under the Partially Connected System, Novato SD would serve 1,070 AFY of tertiary treated recycled water to the Novato South Service Area and 968 AFY to the Sears Point Service Area when compared to the Basic System, with a corresponding reduction discharge. Analysis of recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, the Partially Connected System would reduce discharge by an estimated 2,555 AFY. Compared to the No Action (NEPA) baseline, Partially Connected System would reduce discharge by an estimated 723 AFY. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both CEQA and NEPA baselines. This reduction in discharge would have an incremental, but beneficial, impact to receiving water quality.

SVCSD

Under the Partially Connected System, SVCSD would serve 1,662 AFY of tertiary treated recycled water to the Southern Sonoma Valley Service Area when compared to the Basic System, with a corresponding reduction in discharge. Additional supplies would also be sent to the Napa Salt Ponds as available. This would provide a greater reduction in treated effluent discharge to San Pablo Bay. Analysis of recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When in incorporated into projected 2020 flow conditions, the Partially Connected System would result in an estimated discharge reduction of 4,334 AFY. Compared to the No Action (NEPA Baseline) discharge would be reduced 2,693 AFY. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay under both CEQA and NEPA baselines. Therefore, this reduction in discharge would have an incremental, but beneficial, impact to receiving water quality.

Napa SD

Under the Partially Connected System, Napa SD would serve 1,440 AFY of tertiary treated recycled water to the Carneros East Area and Napa Salt Marsh Restoration Area, 2,826 AFY to the MST Area, and 155 AFY to areas east of the Napa SD WWTP. Compared to the CEQA baseline, the Partially Connected System would provide 4,421 AFY of recycled water for irrigation compared to the Basic System, with a corresponding reduction in discharge. Analysis of recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP. When incorporated into projected 2020 flow conditions, the Partially Connected System would result in an estimated discharge reduction of 4,745 AFY. Compared to the No Action (NEPA) baseline, the Basic System would reduce discharge by 3,681 AFY. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both CEQA and NEPA baselines. Therefore, this discharge reduction would have an incremental, but beneficial, impact to receiving water quality.

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. Provision of this amount of recycled water would result in an estimated total discharge reduction of 5,949 AFY for all of the WWTPs (See **Table 3.4-17**).

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. Provision of this amount of recycled water would result in an estimated total discharge reduction of 8,320 AFY for all of the WWTPs (see Table 3.4-17).

TABLE 3.4-17
FULLY CONNECTED SYSTEM DISCHARGE (2020) COMPARED TO CEQA NO PROJECT AND NEPA NO ACTION BASELINE

	Napa SD	SVCSD	Novato SD	LGVSD	Total	Salt Ponds
No Project (2002 Data)	5,515	2,805	5,267	1,906	15,492	0
No Project (2020) Discharge	7,402	4,334	8,406	2,768	22,911	0
Fully Connected Discharge	2,657	0	4,706	2,181	9,543	3,085
Fully Connected Discharge CEQA Increment	**-2,858**	**-2,805**	**-561**	**+275**	**-5,949**	**+3,085**
Fully Connected Discharge vs 2020 Discharge	**-4,745**	**-4,334**	**-3,700**	**-587**	**-13,368**	**+3,085**
No Action Discharge (2020)	6,338	2,693	6,574	2,257	17,863	3,257
Fully Connected Discharge	2,657	0	4,706	2,181	9,543	3,085
Fully Connected Discharge NEPA Increment	**-3,681**	**-2,693**	**-1,868**	**-76**	**-8,320**	**-172**

SOURCE: CDM, 2009

Table 3.4-18 presents the anticipated monthly change in discharge for each WWTP under the Fully Connected System, compared to both existing conditions and the No Action Alternative. As a whole, the projects proposed as a part of the Fully Connected System would further increase the use of recycled water in the action area and further reduce the volume of treated effluent discharged by the WWTPs compared to the Partially Connected System.

LGVSD/NMWD

Under the Fully Connected System, there would be no additional recycled water served by LGVSD when compared to the Partially Connected System; therefore, there would be no change to the amount of treated wastewater discharged by LGVSD. The impact discussion for LGVSD under the Partially Connected System is also applicable for the Fully Connected System.

TABLE 3.4-18
CHANGE IN MONTHLY WWTP DISCHARGE UNDER THE FULLY CONNECTED SYSTEM (AFY)

	LGVSD		Novato SD		SVCSD		Napa SD	
	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)	Change from No Project (2002)	Change from No Action (2020)
January	51	0	156	-1	-612	-733	-200	-270
February	46	0	142	-1	-375	-485	-837	-900
March	48	-3	15	-142	-396	-449	-1,030	-1,100
April	21	-29	-495	-634	-139	0	-538	-589
May	16	-36	-499	-640	0	0	0	0
June	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0
September	0	0	-158	-284	0	0	0	0
October	0	0	-12	-149	0	0	0	0
November	44	-5	138	-12	-603	-413	-339	-822
December	49	-2	152	-5	-680	-802	70	0
Total	275	-76	-561	-1,869	-2,805	**-2,882**	**-2,875**	-3,681

SOURCE: CDM, 2009

Novato SD/NMWD

Under the Fully Connected System, Novato SD would serve 1,587 AFY of tertiary recycled water to the Southern Sonoma Valley Service Area compared to the Partially Connected System, with a corresponding reduction in discharge. Analysis of recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, discharge would be reduced by an estimated 3,700 AFY. Compared to the No Action (NEPA) baseline, the Fully Connected System would reduce discharge by 1,868 AFY. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both CEQA and NEPA baselines. Therefore, this Partially Connected System reduction in discharge would have an incremental, but beneficial, impact to receiving water quality.

SVCSD

Under the Fully Connected System, SVCSD would serve 1,511 AFY of tertiary recycled water to the Central Sonoma Valley Service area and would not serve any recycled water to the Southern Sonoma Valley Service Area when compared to the Partially Connected System. Under this alternative, the Southern Sonoma Valley Service Area would be served by Novato SD instead of SVCSD. However, SVCSD will continue to send excess tertiary treated recycled water to the Napa Salt Marsh for habitat restoration. Analysis of recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, discharge would be reduced by an estimated 4,334 AFY. Compared to the No Action (NEPA Baseline) discharge

would be reduced to an estimated 2,693 AFY. This would have a beneficial effect with regard to mass loading of constituents of concern, including those identified on the 303(d) list for San Pablo Bay, under both the CEQA and NEPA baseline. Therefore, this change in discharge would have an incremental, but beneficial, impact to receiving water quality.

Napa SD

Under the Fully Connected System, there would be no additional recycled water served by Napa SD when compared to the Partially Connected System; therefore, there would be no change to the amount of treated wastewater discharged by Napa SD. The impact discussion for Napa SD under the Partially Connected System is also applicable for the Fully Connected System.

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. (Beneficial Impact)

Treated wastewater from SVCSD WWTP is currently discharged to Schell Slough during the wet season and is stored during the dry season for irrigation. The upgraded SVCSD WWTP would produce disinfected tertiary treated water, which would be delivered to Ponds 7 and 7A. The recycled water would be mixed with water from Ponds 7 and 7A. After the pond restoration is complete, the recycled water would be used for agricultural irrigation during the summer.

No Project Alternative

The proposed project would not be implemented under the No Project Alternative, therefore there would be no change in existing conditions. 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. Facilities for Napa salt marsh pond restoration would be implemented only by SVCSD and Napa SD. A discussion of impacts for each Member Agency is provided below.

LGVSD/ NMWD, Novato SD/ NMWD, Napa SD

No facilities would be implemented for habitat restoration at the Napa salt marsh ponds under No Action Alternative within the LGVSD, Novato SD, and Napa SD service areas. Therefore no impact would occur.

SVCSD

The Napa River Salt Marsh Restoration Project EIR/EIS describes the Water Delivery Option that includes use of recycled water generated at the SVCSD WWTP for habitat restoration in the Napa

salt marsh area. Ponds 7 and 7A form 8% of the marsh area and are located north of Napa Slough. The ponds north of Napa Slough have limited aquatic diversity due to survival of only high-salt tolerant organisms in the highly saline conditions due to the historical salt production processes. Dilution of salinity would improve the aquatic habitat diversity and provide feeding and resting habitat for migratory shorebirds and water fowl. Reduction of the existing high salinity in the ponds through use of disinfected tertiary treated wastewater would therefore have a long term beneficial impact (JSA, 2003).

Use of recycled water for habitat restoration would reduce or eliminate discharge to San Pablo Bay from SVCSD. This water would be valuable as a means of further diluting bittern (i.e., increasing the allowable bittern discharge rate). Use of recycled water for reducing salinity would also ensure availability of sufficient discharge capacity to accommodate the available volume of water (JSA, 2003). This would be a beneficial impact.

In general, the soluble concentrations of trace metal and organic compounds are higher in the salt ponds than in San Pablo Bay. Therefore, opening the ponds to tidal action would gradually reduce the elevated pond than concentrations down to ambient background conditions. Nutrients such as nitrogen and phosphorus could stimulate algal and vascular aquatic vegetation growth due to the shallow depth of the ponds. However, it is anticipated that chemical constituents would be diluted substantially due to the large volume of water and dilution capacity in the ponds. Mercury accumulation in the restored wetlands could pose a concern due to the potential formation of methyl mercury in the chemically-reducing conditions of shallow wetland sediments. The potential long-term impacts of bioaccumulation of mercury are likely to increase over existing levels; therefore the impact could be significant. Use of recycled water to restore the natural salinity patterns in the salt ponds would occur under the wastewater reuse policy in the San Francisco Bay RWQCB Resolution 94-086. SVCSD would be required to prepare a management plan and obtain an exception to waste discharge prohibition from the San Francisco Bay RWQCB. In addition, implementation of **Mitigation Measure 3.4. 9a** would minimize any adverse water quality impact to less-than-significant levels.

Phase 1 (Project level)

LGVSD/ NMWD, Novato SD/ NMWD, Napa SD

Restoration of the Napa salt marsh ponds implemented under Phase 1 would be similar to that under the No Action Alternative for all the Member Agencies, therefore the impacts would be similar. There would be no impacts and no additional impacts are expected.

SVCSD

Restoration of the Napa salt marsh ponds implemented under Phase 1 would be similar to that under the No Action Alternative for SVCSD. Similar to that discussed under Phase 1, the impact would be less than significant with **Mitigation Measure 3.4.9a**, the impact would be similar. No additional impacts are expected.

Alternative 1: Basic System (Program level)

Restoration of the Napa salt marsh ponds implemented under the Basic System would be similar to those under the No Action Alternative for some of the Member Agencies; therefore the impacts would be similar. No additional impacts are expected.

LGVSD/ NMWD, Novato SD/ NMWD

No facilities would be implemented for habitat restoration at the Napa salt marsh ponds under the Basic System within the LGVSD, Novato SD, and Napa SD service areas. Therefore no impact would occur.

SVCSD and Napa SD

Restoration of the Napa salt marsh ponds implemented under the Basic System would be similar to that under the No Action Alternative and Phase 1 for SVCSD. Please refer to the discussion under SVCSD above. The impact would be less than significant with **Mitigation Measure 3.4.9a**.

Alternative 2: Partially Connected System (Program level)

Restoration of the Napa salt marsh ponds implemented under the Partially Connected System would be similar to those under the Basic System for some of the Member Agencies; therefore the impacts would be similar. No additional impacts are expected.

LGVSD/ NMWD, Novato SD/ NMWD

No facilities would be implemented for habitat restoration at the Napa salt marsh ponds under the Partially Connected System. Therefore no impact would occur.

SVCSD and Napa SD

Restoration of the Napa salt marsh ponds implemented under the Partially Connected System would be similar to that under the Basic System. Similar to that discussed above, the impact would be less than significant with **Mitigation Measure 3.4.9a**. No additional impacts are expected.

Alternative 3: Fully Connected System (Program level)

Restoration of the Napa salt marsh ponds implemented under the Fully Connected System would be similar to those under the Partially Connected System for some of the Member Agencies; therefore the impacts would be similar. No additional impacts are expected.

LGVSD/ NMWD, Novato SD/ NMWD

No facilities would be implemented for habitat restoration at the Napa salt marsh ponds under the Fully Connected System. Therefore no impact would occur.

SVCSD and Napa SD

Restoration of the Napa salt marsh ponds implemented under the Fully Connected System would be similar to that under the Partially Connected System. Similar to that discussed above, the impact would be less than significant with **Mitigation Measure 3.4.9a**. No additional impacts are expected.

Mitigation Measures

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;

3.4.4 Impact Summary by Service Area

Table 3.4-19 provides a summary of potential project impacts related to water quality.

TABLE 3.4-19
POTENTIAL IMPACTS AND SIGNIFICANCE – WATER QUALITY

Proposed Project	Impact by Member Agency Service Areas			
	LGVSD	**Novato SD**	**SVCSD**	**Napa SD**
Impact 3.4.1: Short Term Construction Related Effects.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LTS	LTS	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic Connected System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.4.2: Incidental Runoff.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LTS	LTS	NI
Phase 1	LTS	LTS	LTS	LTS
Alternative 1: Basic Connected System	LTS	LTS	LTS	LTS
Alternative 2: Partially Connected System	LTS	LTS	LTS	LTS
Alternative 3: Fully Connected System	LTS	LTS	LTS	LTS
Impact 3.4.3: Public Health.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	LTS	LTS	LTS	LTS
Phase 1	LTS	LTS	LTS	LTS
Alternative 1: Basic Connected System	LTS	LTS	LTS	LTS
Alternative 2: Partially Connected System	LTS	LTS	LTS	LTS
Alternative 3: Fully Connected System	LTS	LTS	LTS	LTS

TABLE 3.4-19 (Continued)
POTENTIAL IMPACTS AND SIGNIFICANCE – WATER QUALITY

Proposed Project	Impact by Member Agency Service Areas			
	LGVSD/NMWD	Novato SD	SVCSD	Napa SD
Impact 3.4.4: Agricultural Use.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LTS	LTS	NI
Phase 1	LTS	LTS	LTS	LTS
Alternative 1: Basic Connected System	LTS	LTS	LTS	LTS
Alternative 2: Partially Connected System	LTS	LTS	LTS	LTS
Alternative 3: Fully Connected System	LTS	LTS	LTS	LTS
Impact 3.4.5: Secondary Effects to Groundwater Quality.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	LTS	LTS	LTS	LTS
Phase 1	LTS	LTS	LTS	LTS
Alternative 1: Basic Connected System	LTS	LTS	LTS	LTS
Alternative 2: Partially Connected System	LTS	LTS	LTS	LTS
Alternative 3: Fully Connected System	LTS	LTS	LTS	LTS
Impact 3.4.6: Surface Water Storage.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LTS	LTS	LTS
Phase 1	LTS	LTS	LTS	LSM
Alternative 1: Basic Connected System	LTS	LTS	LTS	LSM
Alternative 2: Partially Connected System	LTS	LTS	LTS	LSM
Alternative 3: Fully Connected System	LTS	LTS	LTS	LSM
Impact 3.4.7: Pipeline Rupture.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	LTS	LTS	LTS	LTS
Phase 1	LTS	LTS	LTS	LTS
Alternative 1: Basic Connected System	LTS	LTS	LTS	LTS
Alternative 2: Partially Connected System	LTS	LTS	LTS	LTS
Alternative 3: Fully Connected System	LTS	LTS	LTS	LTS
Impact 3.4.8: Reduced Discharge to Surface Water.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	SI	SI	SI	SI
Phase 1	BI	BI	BI	BI
Alternative 1: Basic Connected System	BI	BI	BI	BI
Alternative 2: Partially Connected System	BI	BI	BI	BI
Alternative 3: Fully Connected System	BI	BI	BI	BI
Impact 3.4.9: Reuse for Habitat Restoration.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	LSM	NI
Phase 1	NI	NI	LSM	NI
Alternative 1: Basic Connected System	NI	NI	LSM	LSM
Alternative 2: Partially Connected System	NI	NI	LSM	LSM
Alternative 3: Fully Connected System	NI	NI	LSM	LSM

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

3.4.5 References

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