

CHAPTER 4

Cumulative Impacts

4.1 CEQA Analysis Requirements

The National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require the analysis of cumulative impacts. A cumulative impact is created as a result of the combination of the project evaluated in the EIR/EIS together with other projects causing related impacts. NEPA and the Council on Environmental Quality (CEQ) regulations require an assessment of cumulative impacts, in addition to the evaluation of direct impacts (40 C.F.R § 1508.7, 1508.25). CEQ regulations implementing NEPA define a cumulative impact as:

“... the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

The *CEQA Guidelines* require that EIRs discuss the cumulative impacts of a project when the project’s incremental effect is “cumulatively considerable,” meaning that the project’s incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects.¹ The purpose of this analysis is to disclose significant cumulative impacts resulting from the North Bay Water Recycling Program (NBWRP) in combination with other projects or conditions, and to indicate the severity of the impacts and the likelihood of occurrence (CEQA Guidelines Sections 15130 (a) and (b)). The *CEQA Guidelines* indicate that the discussion of cumulative impacts should include:

- (1) Either: (A), a list of past, present, and probable future projects producing related or cumulative impacts; or (B), a summary of projections contained in an adopted general plan or similar document, or in an adopted or certified environmental document, which described or evaluated conditions contributing to a cumulative impact;
- (2) A discussion of the geographic scope of the area affected by the cumulative effect;
- (3) A summary of expected environmental effects to be produced by these projects; and,
- (4) Reasonable, feasible options for mitigating or avoiding the project’s contribution to any significant cumulative effects.

¹ CEQA *Guidelines* Section 15130, 15065, as amended January 1, 2000.

The analysis of cumulative effects in this chapter focuses on the effects of concurrent implementation of the proposed NBWRP with other spatially and temporally proximate projects. As such this analysis will rely on a list of projects that have the potential to contribute to potential cumulative impacts in the project area. The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

4.2 Related Projects

4.2.1 Geographic Scope

The potential for project-generated impacts to contribute to a significant cumulative impact would arise if they are located within the same geographic area. This geographic area may vary, depending upon the issue area discussed and the geographic extent of the potential impact. For example the geographic area associated with construction noise impacts would be limited to areas directly affected by construction noise, whereas the geographic area that could be affected by construction-related air emissions may include a larger area. In general, impacts associated with the implementation of the NBWRP are limited to short-term construction impacts. Long-term impacts are limited to beneficial impacts to water supply and energy use associated with recycled water treatment and distribution.

Construction impacts associated with aesthetics, increased noise, dust, erosion, and access limitations tend to be localized and could be exacerbated if other development or improvement projects are occurring within the vicinity of proposed facilities. The geographic scope may vary for each issue area depending on the nature of the cumulative impacts. When considered cumulatively with other projects that may occur in the same geographic vicinity, the scope of analysis is defined by the physical boundaries for each issue area. Therefore, cumulative impacts to water quality would occur within the watershed. For this cumulative analysis, the two geographic boundaries that capture the majority of these impacts are the North San Pablo Bay watershed and the Bay Area Air Basin. Where appropriate, other jurisdictional boundaries are applied for individual issue area analysis.

4.2.2 Project Timing

In addition to the geographic scope, cumulative impacts are determined by timing of the other projects relative to the proposed project. Schedule is particularly important for construction related impacts: for a group of projects to generate cumulative construction impacts, they must be temporally as well as spatially proximate. The projects described in **Sections 4.2.3** and **4.2.4** are likely to fluctuate due to schedule changes of other unknown factors, this analysis assumes these projects would be implemented concurrently with implementation of the NBWRP.

4.2.3 Relationship to Water Supply Projects Occurring Outside of the North San Pablo Bay Watershed

As noted throughout this EIR/EIS, water supply within the North San Pablo Bay watershed is provided by three primary sources: water supply imported from outside of the watershed, local surface water diverted within the watershed, and groundwater. Imported supplies include supplies imported from the Russian River (including a portion diverted from the Eel River watershed by PG&E's Potter Valley Project) and distributed within Sonoma and Marin Counties by Sonoma County Water Agency (SCWA), and supplies imported from the Sacramento-San Joaquin Delta and delivered to Napa County by the Department of Water Resources. A number of projects that have potential to affect the amount, timing, availability, quality, and management of imported water supplies have or will be proposed, and may be implemented outside of the North San Pablo Bay Watershed.

The objectives of the NBWRP are identified in **Chapter 2, Project Description**. NBWRP would recover² wastewater that is currently discharged to North San Pablo Bay, and reuse that water for urban and agricultural irrigation in order to offset the use of potable supplies for this purpose. The level of potential potable offset is identified in **Section 3.2, Groundwater, Section 3.4 Water Quality, and Section 3.11, Public Utilities**. The NBWRP's only contribution to impacts related to the provision of imported surface water supplies is beneficial, as the provision of recycled water would offset use of potable supplies for irrigation.

4.2.4 Type of Projects Considered

As described in **Chapter 3.0** of this EIR/EIS, the majority of impacts associated with implementation of the proposed NBWRP are short-term impacts related to construction of the proposed facilities, rather than long-term project operation. Therefore, cumulative effects will primarily result from potential combined impacts of other construction projects in Sonoma, Napa, and Marin Counties. For this analysis, other past, present, and reasonably-foreseeable future construction projects, particularly other infrastructure projects, in the area have been identified.

Table 4-1 lists recent, current, and proposed projects that, along with implementation of the NBWRP, could potentially contribute to cumulative impacts within the project area. A brief overview of large capital improvement projects planned by public agencies is provided below. In addition to these specific projects, it is recognized that additional construction development will occur within the project area and may contribute to cumulative construction impacts. Such planned and approved development, as listed in Table 4-1, is in accordance with the General

² It should be noted that the recovery of recycled water occurs only after the use of potable water, generation of wastewater through municipal, commercial, and industrial and irrigation uses, and the subsequent treatment of that wastewater to levels appropriate for release to the environment as treated effluent, consistent with NPDES permit requirements. Recovery of treated effluent prior to discharge, and reuse of that effluent for irrigation purposes, would not increase or alter the amount, rate, or distribution of water imported into the area to support existing and future water demands under the approved General Plans within the NBWRP area. Rather, it would offset the use of potable supplies for irrigation. A full discussion of current and projected water demands within the areas served by the NBWRP, based upon approved General Plans within the region, is provided in **Chapter 5, Growth Inducement and Secondary Effects of Growth**. The NBWRP's contribution to the provision of water supplies within the region is also discussed.

**TABLE 4-1
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY**

| Jurisdiction | Project | Area Affected | Status |
|--|--|--|--|
| CURRENT AND ONGOING PROJECTS | | | |
| Marin County Projects | | | |
| Caltrans | Culvert Replacement and rock slope installation | Route 1 near Marshall, 1.5 miles south of Marshall Petaluma Road | Undefined |
| | Marin 101 High Occupancy Vehicle (HOV) Project | San Rafael | Under Construction, Estimated Completion Fall 2009 |
| | Rock slope installation and drainage repair | Highway 1 near Tamalpais-Homestead Valley at 2.2 miles north of Muir Beach Overlook | Undefined |
| | Rock slope protection installation | Near San Rafael, 0.1 miles north of Sir Francis Drake Boulevard. | Undefined |
| | Slope and drainage repair | Route 101 in Sausalito, north of Rodeo Drive | Undefined |
| | Replace failed drainage | San Rafael from Miller Creek Road to Lucas Valley Road | Undefined |
| | Novato Creek Bridge Levee Reconstruction | Novato | Undefined |
| Marin County Department of Public Works | Cal-Park Tunnel | Conversion of 1,100 foot long tunnel paralleling Hwy 101 from San Rafael to Larkspur into pedestrian/ cycling path | Under Construction; Completion Scheduled for 2010 |
| Marin County Flood control and Water Conservation District | Improvements in Novato Flood Zone 1 | Portion of Vineyard Creek, upstream of Center Road to downstream of McClay Avenue | |
| City of San Rafael | | | |
| City of San Rafael Public Works, Capital Improvements Projects | Intersection Improvements | Medway Street from Francisco Boulevard East to Canal, San Rafael | Under Construction |
| | 4th Street Rehabilitation and West End Village | 4th Street from D Street to 2nd Street, San Rafael | Under Construction |
| | City Plaza Improvements | 4th and Court Streets, San Rafael | Under Construction |
| | Bicycle Pedestrian Master Plan Update | City of San Rafael | ND 2008 |
| | Fifth Avenue Signal Upgrade | Fifth Avenue, Downtown San Rafael | January through March 2009 |
| City of San Rafael Planning Division | San Rafael Corporate Center | City of San Rafael | Under Construction |
| | Northgate Mall Renovation | City of San Rafael | Under Construction |
| | Chrysler/ Jeep/ Dodge Dealership; VW/ Audi and Nissan Dealership; Smart Car Dealership | City of San Rafael | Under Construction |
| Marin Municipal Water District | Desalination Project | City of San Rafael | FEIR December 2008 |
| | Recreation Facility at San Rafael Airport | City of San Rafael | Under Construction |
| | Target | Shoreline Center, City of San Rafael | Planning; DEIR September 2008 |
| | Marin County Health Campus | City of San Rafael | Under Construction |
| | Mt. Tamalpais Cemetery | City of San Rafael | Design |

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

| Jurisdiction | Project | Area Affected | Status |
|--|--|--|--|
| City of San Rafael (cont.) | | | |
| Marin Municipal Water District | Village at Loch Lomond Marina | City of San Rafael | Planning |
| | Condos at San Pablo Avenue | City of San Rafael | Under Construction |
| | Mixed used residential | Tamalpais and 3 rd Street, San Rafael | Design |
| | Subdivision | Emma Court | Application |
| City of Novato | | | |
| City of Novato Department of Public Works Capital Improvement Projects | Storm Drain Master Plan | City of Novato | Completion scheduled 2009-2010 |
| | Municipal Building Renovation | 901 Sherman Avenue, City of Novato | Construction in 2008 scheduled for completion Summer 2009 |
| | Neighborhood Projects | City of Novato | Continuing; dependent on scope and type of project |
| | Hamilton Pool/ Gymnasium Renovation | City of Novato | Design Phase 2008-2009; Pool construction 2009, reopening 2010; Gymnasium completion scheduled for 2012 |
| | Commuter Bike Connection | Westerly side of Highway 101, Enfrente Rod to South Novato Blvd | Construction Spring/Summer 2009; Estimated completion Fall 2009 |
| | Hamilton Wetlands Access | Feasibility study for alternate access road from Hamilton Parkway to the Wetlands Restoration Project area | Feasibility Study began in Winter 2006-2007; Environmental review completed summer 2008; Construction schedule pending |
| | Road Improvements to address walkway, bikeway, and drainage issues | Indian Valley Road; Hill Road | 2009-2010 |
| | Roadway Improvements to address safety and traffic congestion | Novato Blvd. between Diablo Avenue and Grant Avenue | NEPA/ CEQA Environmental Review scheduled for completion early 2009; Construction 2011-2012 |
| | Roadway Improvements | Rowland Blvd between Redwood Blvd. and Vintage Way | Construction 2012 |
| | Phase III Roadway Improvements | Olive Avenue between Redwood Blvd. and Railroad Avenue | Construction during Spring/Summer 2009 |
| | Street Improvements | Mill Road. | Construction period 2008-2009 |
| | Drainage Improvements | Rush Creek, City of Novato | Construction schedule dependent on funding |

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

| Jurisdiction | Project | Area Affected | Status |
|--|---|--|--|
| Sonoma County | | | |
| Caltrans District 4 | Highway 101 Widening Project | Continuous HOV lane extension from Southern Marin County to Windsor, Sonoma County; Wilfred Avenue to Highway 12; Highway 12 to Steele Lane, Rohnert Park Expressway to Wilfred avenue, Steele Lane to Windsor River Road, Old Redwood Highway in Petaluma to Rohnert Park Expressway. | Construction 2007-2009 |
| | Marin Sonoma Narrows Project | Extends 26 miles from South of Route 37 interchange in Novato to Corona Road Overcrossing in Petaluma | EIR 2007; Ongoing construction and environmental review; Estimated completion 2011 |
| | Santa Rosa HOV Widening | Route 12 from S. Santa Rosa Overhead to the Route 12/101 Separation and on Route 101 from Earle Street Pedestrian Overcrossing to Steele Lane | 2008-mid 2010 (3 phases over a 2.5 year period) |
| Sonoma County Transportation and Public Works Department | Geyserville Park & Ride Visitor Plaza | Sonoma County | Under Construction |
| | Road Improvements- State Route (SR) 12 Corridor Improvement Project Phase II, Stage 1; Sidewalk Project | SR 12 | October 2008 to June 2009 |
| | River Road Channelization and River Access Project | Sunset Beach, Sonoma County | Under Construction |
| | Central Landfill Leachate and Compressed Landfill Gas Pipeline Project | Rohnert Park Expressway and Stony Point Road, Sonoma County | Under Construction |
| | Central Landfill Site - East Canyon Expansion Phase IV | Sonoma County | Permits Pending |
| | Signalization and widening | Adobe Road and East Washington Street, Petaluma | 2009 |
| | Slide Repair (Federal Aid Project) | River Road, Sonoma County | Under Construction |
| Sonoma County Permit and Resource Management Department | Draft Grading, Drainage, Vineyard-Orchard Ordinance | Sonoma County | Hearing on October 21, 2008 |
| | Roblar Road Improvements | Roblar Road, southern Sonoma County, approximately five miles west of the City of Cotati | Planning Commission Approval Pending |
| | Blue Rock Quarry | Highway 116 approximately one mile west of Forestville in Sonoma County | Final EIR (FEIR), Planning Commission Approval Pending |
| | Dutra Asphalt and Recycling Facility | southwestern unincorporated Sonoma County, directly south of Petaluma, along the Petaluma River | Environmental Review period; Planning Commission Approval Pending |
| | Housing Element Update 2009 | Sonoma County | Ongoing |
| | Penngrove Design Guidelines | Penngrove Mainstreet | Draft |
| | Preservation Ranch Project | 19,652-acre ¹ property in northwestern Sonoma County | Environmental Review/ Application Pending |

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

| Jurisdiction | Project | Area Affected | Status |
|------------------------------|--|---|--|
| Sonoma County (cont.) | | | |
| Sonoma County Water Agency | Russian River Instream Flow and Restoration | Russian River Watershed, Jenner | DEIR 2013 |
| | North Sonoma County Agricultural Reuse Project | Northern Sonoma County | FEIR 2009 |
| | Russian River County Sanitation District Equalization Basin Storage Project | Russian River Wastewater Treatment Plant, Guerneville, Russian river Watershed | FEIR March 2009 |
| | Sea Ranch Sanitation Zone Wastewater Treatment, Storage and Disposal Modifications Project | Sea Ranch Community, Sonoma County | DEIR |
| | Sonoma Valley County Service District Trunk Line Project | Sonoma, Schellville | Construction 2009 |
| | Water Supply, Transmission, and Reliability Project | Sonoma County; Lake Sonoma, along Dry Creek downstream of Lake Sonoma/Warm Springs Dam, and along the mainstem of the Russian River downstream of the confluence with Dry Creek | DEIR 2009 |
| | Sewer Lateral Ordinance | All Sanitation Districts within Sonoma County | Proposed 2009 |
| City of Sonoma | | | |
| | No Current Projects | | |
| Napa County | | | |
| Caltrans (SHOPP) | Tulucay Bridge #21-0003 Replacement | Route 121 in Napa | Undefined |
| | Sarco Creek Bridge #2-0008 Replacement | Route 121 near Napa | Undefined |
| | Cappell Creek Bridge #21-0009 Replacement | Route 121 near Napa | Undefined |
| | 1.7 miles of Road Improvements (Contract No. 444214) | 121 in Napa County from Duhig Road to the Sonoma Napa County line | Construction from February 2009 to December 2009 |
| | Inlet and Drain Installation | Route 128 near St. Helena, east of Lake Hennessey | |
| | Horizontal Drain Installation | Route 128 near Lake Berryessa, 1.1 miles south of Knoxville Road | |
| Napa County Public Works | Airport Glideslope | Napa County Airport | Planning |
| | Duhig Bike Path | Bike lanes will begin at intersection of Duhig Road and Las Amigas and run south for approximately 2,500 feet; terminate at Huichica Creek bridge | Planning (as of 3/25/2009) |
| | Oak Knoll/ Oakville Crossroad | Oak Knoll to Oakville Crossroad reach of the Napa River, continuation of Rutherford Dust Project | Planning, 2010 Implementation |
| | Underground Storage Tank Cleanup | Napa County Airport | Planning |
| | Whitehall Lane Washout Repair | Whitehall Lane, Napa | Planning |
| | White Sulphur Springs Road | White Sulphur Springs Road, St. Helena | Planning |

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

| Jurisdiction | Project | Area Affected | Status |
|--|---|--|--|
| <i>Napa County (cont.)</i> | | | |
| Napa County Public Works (cont.) | General Aviation Apron Rehabilitation | Napa County Airport | Planning |
| | Dry Creek Road slide Repair | Dry Creek Road, Napa | Planning |
| | Napa County Airport | Napa County Airport | Planning/ Environmental Assessment |
| | Oakville Crossroad Bridge Replacement | Oakville Crossroad near Route 29, south of Lake Berryessa | Design |
| | Rule 20 A Underground Utilities | State Route 29, Galleron Lane to Dowdell Lane, St. Helena and Napa County | Design |
| | Main Street Water Main | City of Napa | Construction |
| | Redwood Road | City of Napa | Construction |
| Napa County Conservation, Development and Planning Department (CDPD) | Angwin Project | Pacific Union College, Angwin, Northern Napa County | Master Development Plan: July 2007 |
| | Lake Luciana Project | Weeks Lake, Pope Valley, Napa County; Pope Valley Road and Barnett Road | Planning |
| | Napa Pipe Project | 29 intersections in City of Napa, City of American Canyon, Napa County, | Planning |
| | Napa River Rutherford Reach Restoration Project | Reach of Napa River near Zinfandel Lane and Oakville Crossroad, City of Napa | MND 2008 |
| | Upper Range Vineyard Project | 678 acres between Silverado Trail and Lake Hennessey, 13 miles north of the City of Napa | Planning |
| | General Plan 2008 | Napa County | Current/ Ongoing |
| | General Plan Housing Element | Napa County | Current/ Ongoing |
| Napa Sanitation District (Napa SD) | Napa State Hospital Recycled Water Pipeline | Napa Valley College and Napa State Hospital | Design |
| | Lower Alphabet Street Sewer Improvement Project | A Street to I Street between York Street and Jefferson Street in the City of Napa | Design |
| | Stonecrest Area Sewer Project | Stonecrest Drive vicinity in City of Napa | Design |
| | I/I Reduction Construction Projects | City of Napa | Planning |
| | Alphabet Street –Upper Section Sewer Project | Alphabet Streets west of York Street in City of Napa | Planning |
| | Browns Valley Road and First Street | City of Napa | Planning |
| | Pump Station Removal (in conjunction with Napa County Public Works) | First Street and Soscol Avenue | Fall 2009 |
| Napa Flood and Water Conservation District | Napa River- Napa Creek Flood Protection Project | City of Napa from Highway 29 at Butler Bridge north to Trancas Street, 6 miles on the Napa River, 1 mile on Napa Creek | Scheduled for completion 2011 |
| City of Napa Planning Department | Stanly Ranch Resort Development | North of Napa River, east of Cuttings Wharf Road, south of Hwy 12/121 | FEIR |

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

| Jurisdiction | Project | Area Affected | Status |
|---|--|--|------------------------------------|
| City of Napa | | | |
| City of Napa Planning Department (cont.) | Bridge Replacement | First Street from Juarez Street, over Napa River, west of Silverado Trail; detour routes on Lincoln, Soscol, 3rd Street, and Hwy 121 | Bridge Closure until Fall 2009 |
| City of Napa Public Works Department –Engineering Division Capital Improvements Projects | Various Road Widening | Big Ranch Road at Trancas Street to Salvador Creek Bridge; Linda Vista Avenue and Trower Avenue; Jefferson/ Salvador | Under Construction until 2009/2010 |
| | Hidden Glen Park Project | Hidden Glen Landfill | Estimated completion 2009 |
| | Guardrail Installation | East Avenue | Estimated completion 2009 |
| | Annual Street Resurfacing | Various city roadways | Fall 2009 |
| | Street Widening | 1000 block of Orchard Avenue on the south side of the street | Fall 2009 |
| | First Street River Overlook (in conjunction with Napa SD pump station removal) | First Street and Soscol Avenue | Fall 2009 |
| | Dock Project | 4th Street Boat Dock, Main Street | Estimated Completion Fall 2009 |
| City of Napa Public Works Department –Transportation Division Capital Improvements Projects | Signalization Projects | Redwood Road at Carol Drive; California Blvd at Pueblo Avenue; Jefferson Road at Old Sonoma Road; Highway 29 at Imola Road | Under Construction 2008-2009 |

RECENT PROJECTS

| | | | |
|--|---------------------------------------|---|-----------------------|
| Marin County | | | |
| Marin County Flood Control and Water Conservation District | Improvements in Novato Flood Zone 1 | Portion of Vineyard Creek, upstream of Center Road to downstream of McClay Avenue | November/December 208 |
| City of San Rafael Department of Public Works | Intersection Improvements | Medway Street/ Canal intersection | Summer 2008 |
| | Pedestrian Safety Improvements | Canal Street | December 2009 |
| | Pavement Rehabilitation | Alameda del Prado | Completed 2008 |
| | Bridge Replacement | Center Road at Vineyard Creek, Novato | October 2008 |
| | Road Improvements | Cypress Avenue on south side of Novato Blvd, west of Diablo Avenue; Kendon Lane Assessment District from Center Road to the southerly end | Completed 2008 |
| | Bridge Replacement | Grant Avenue over Novato Creek near intersection with Virginia Avenue | Completed 2008 |
| | Pavement Rehabilitation | Novato Blvd. between Grant Avenue and Eucalyptus | Completed 2008 |
| | Hamilton Firehouse Conversion | Hamilton Air Force Base, City of Novato | April 2008 |
| | Pioneer/ Scottsdale Park Improvements | City of Novato | 2003-2008 |

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

| Jurisdiction | Project | Area Affected | Status |
|--|--|---|-------------------------|
| Marin County (cont.) | | | |
| City of Novato Public Works (CIP) (cont.) | Teen Center Renovation | Grant Avenue, City of Novato | June 2008 |
| | Canyon Roadside Ditch Replacement | City of Novato | 2007-2008 |
| | Scour Mitigation | Grant Avenue Bridge at Novato Creek, City of Novato | 2007-2008 |
| | Flood Protection Levee Improvement | Hamilton Field, City of Novato | 2007-2008 |
| | Drainage Modifications | McKeon Court, Wilmac Court, City of Novato | 2007-2008 |
| North Marin Water District | Stone Tree Golf Course Recycled Water Pipeline | Adjacent to Highway 37, Novato | Completed June 2007 |
| | Stafford Lake Water Treatment Plant | Novato Creek, 4 miles west of downtown Novato, adjacent to Novato Boulevard | Completed; in operation |
| Sonoma County | | | |
| Caltrans District 4 | Road Improvements | 101 East Blithedale Offramp | 2008 |
| | Culvert Replacement | Route 1 near Fort Ross, at Fort Ross Creek, Jenner | 2008 |
| | Culvert Replacement | Route 1 near Timber Cover, 2 miles south of Fort Ross State Historic Park | 2008 |
| | Embankment reconstruction | Route 1 near Jenner, 0.2 miles west of Pacific Avenue | 2008 |
| | Rock slope protection Installation | Route 1 in Fort Ross Historic Park, 0.5 mile east of Fort Ross Road | 2008 |
| | Drainage system installation | Route 116 at Route 12 in Sebastopol | 2008 |
| | Soldier Pile Wall Construction | Route 116 near Guerneville, east of Mays Canyon Road | 2008 |
| | Laguna de Santa Rosa #20-0035 bridge replacement | Route 12 in Sebastopol | 2008 |
| | Culvert Replacement | Route 121 near Schellville, 0.6 miles north of Flying Arrow Ranch Road | 2008 |
| | Replace Maacama Creek Bridge #20-42 and Redwood Bridge # 20-43 | Route 128 near Napa | 2008 |
| Sonoma County Transportation and Public Works | Road Slide Repair | Sonoma Mountain (1 st District) | December 2008 |
| | Rubberized Asphalt Overlay Project (various roadways) | Porter Creek in East Sonoma County toward Calistoga; D Street west of Petaluma City limits; Airport Blvd. | October 2008 |
| | Sidewalk Replacement | Moorland Avenue (5th District) | August 2008 |
| | Road Improvements, turn lanes | River Road at Sunset Beach | August 2008 |
| Sonoma County Permits and Resource Management Department | Canyon Rock Quarry | unincorporated Sonoma County west of the Town of Forestville | FEIR, 2006 |

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

| Jurisdiction | Project | Area Affected | Status |
|---|--|--|---------------------------|
| Sonoma County (cont.) | | | |
| Sonoma County Permits and Resource Management Department (cont.) | Canon Manor | Sonoma County adjacent to City of Rohnert Park Petaluma Hill Road, East Cotati Avenue, Bodway Parkway. | FEIR 2005, Completed 2008 |
| | Gallo Winery Expansion | Dry Creek Road, Healdsburg | FEIR 2005 |
| | Sonoma Country Inn | Graywood Ranch, State Route 12 in the unincorporated community of Kenwood in Sonoma County; north side of Route 12 near the intersection of Route 12 and Lawndale Road; approximately 0.75 mile east of the Pythian Road intersection with Route 12 and approximately 0.6 mile west of the intersection of Adobe Canyon Road | FEIR 2004 |
| | Korbel Summer Crossing | Odd Fellows Park Road | Completed July 2008 |
| | Riverside Drive Bridge Replacement | Sonoma Creek | Completed 2008 |
| | River Road Viaduct at Eagle Nest Lane, 2006 | Sonoma County | Completed 2008 |
| | Windsor Intermodal Facility – Phase II, 2006 | Sonoma County | Completed 2008 |
| | Seismic Retrofit of Russian River Bridge (20C-016) on Moscow Road, 2002 | Sonoma County | Completed 2008 |
| | Santa Rosa Avenue Storm Drain Phases 1 & 2 | Sonoma County | Completed 2003 |
| | Napa Road at Eighth Street East Phase II Storm Drain; Signalization | Sonoma County | Completed 2008 |
| | Seismic Retrofit of Russian River Bridge #20C-00 | Crocker Road | Completed 2006 |
| | Seismic Retrofits of Laguna de Santa Rosa Bridge | Guerneville Road and South Fork of Gualala River Bridge; Hauser Bridge Road and House Creek Bridge ;Stewarts Point-Skaggs Springs Road | Completed 2008 |
| | Seismic Retrofits on Dry Creek Bridge, Freezeout Creek Bridge, and Petaluma River Bridge | Stewarts Point-Skaggs Springs Road, Freezeout Road, Petaluma Boulevard North | Completed 2008 |
| | Overlay Projects (various locations) | Lakeville Road; Arnold Drive; Adobe Road; River Road, Sonoma County | Completed 2008 |
| Napa County | | | |
| Napa County Public Works | Diamond Mountain Road | City of Calistoga, | Complete |
| | Steele Canyon Road | City of Napa | Complete |
| | Deerpark Asphalt Overlay | Deerpark Road, St. Helena ; from its intersection at Silverado Trail to Howell Mountain Road | Complete |
| | Sunnyside Drive and Deerpark Road | City of St Helena | Complete |
| City of Napa Public Works Department – Engineering Division Capital Improvements Projects | Commuter Bike Path | Along Napa Valley Railroad from Main Street to Lincoln Avenue | Fall 2008 |

TABLE 4-1 (Continued)
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

| Jurisdiction | Project | Area Affected | Status |
|---|--|---|----------------|
| <i>Napa County</i> | | | |
| City of Napa Public Works Department – Engineering Division Capital Improvements Projects (cont.) | Napa River Oxbow Preserve Project | 13 acre adjacent to Napa River | Summer 2008 |
| | Underground Utility Project | 1st and 2nd Streets, California Boulevard, and Jefferson Street, Napa | Fall 2008 |
| | River Park Canal Maintenance District | Various canals at River Park, City of Napa | Fall 2008 |
| | Underground Storage Tank Investigation and Remediation | 645 Soscol Avenue | 2008 |
| | Roadway Resurfacing | McKenzie Drive between Silverado and Oxbow Preserve; various | Fall 2008 |
| Napa Sanitation District (Napa SD) | North Napa Sewer Trunk Line Rehabilitation Project | Various segments along the North Napa Sewer Trunk line | Completed 2004 |
| | Trancas Street Manhole Trenchless Rehabilitation | Trancas Street near Soscol, City of Napa | Completed 2003 |
| | Streblov Drive Recycled Water Pipeline Project | Streblov Drive from Kennedy Park Recycled Water Pipeline Project, near railroad tracks along Highway 221, affects Napa Valley College and Napa State Hospital | Complete |

FORESEEABLE FUTURE PROJECTS

| | | | |
|---|---|---|-----------|
| <i>Marin County</i> | | | |
| Marin County Department of Public Works (CIP) | Miller Creek Road and Trail Inventory for Watershed Plan | San Rafael | 2008-2009 |
| | Fish Protection Project | San Geronimo Creek | 2008-2009 |
| | Ring Mountain Enhancement Plan | | 2008-2009 |
| | Railroad grade culvert Installation | Blithedale Creek | 2008-2009 |
| | Baywood Canyon Barn Creek Restoration | Loma Alta | 2008-2009 |
| | Playground Improvements | Village Green at Stinson Beach | 2008-2009 |
| | Irrigation | Civic Center Lagoon | 2008-2009 |
| | Dredging | Novato Creek | 2008-2009 |
| | Vineyard Creek Improvements, Zone 1 Phase II | Center Road, Arbor Circle to McClay Road, Novato | 2008-2009 |
| | Bothin Marsh Restoration and Flood Control Improvements Project | Coyote Creek and Bothin Marsh in Bothin Marsh Open Space Preserve | 2008-2009 |
| | Seminary Drive Pump Station | Redwood Highway, Highway 1 Seminary Drive Northbound off-ramp | 2008-2009 |
| | Slough Culvert Replacement | Corte Madera | 2008-2009 |
| Fish Ladders | Multiple locations: Wood Acre Creek, San Geronimo Creek, Arroyo Creek, Larsen Creek, Montezuma Creek, Cheda Creek | 2008-2009 | |

SOURCE: Compiled by ESA, 2008; Caltrans, 2008; City of Sonoma, 2008; City of San Rafael, 2008; City of Novato' 2008; Marin County, 2008; City of Napa, 2008; Napa County, 2008; Sonoma County, 2008; Napa SD, 2008; SCWA 2008

Plans for Sonoma County, Napa County, and Marin County General Plans, and the Cities of Sonoma, Napa, San Rafael, and Novato. The growth inducement potential of the NBWRP and the secondary effects of accommodating planned growth within the project area are discussed separately in **Chapter 5, Growth Inducement and Secondary Effects of Growth**.

4.2.5 Description of Cumulative Projects

A discussion of individual water service and water recycling projects considered in the Sonoma, Napa, and Marin County areas, and their anticipated environmental impacts is provided below. **Table 4-2** provides a summary of these projects, their geographic relationship to the NBWRP service areas, the types of impacts anticipated for their implementation, and the potential for the NBWRP to contribute to cumulative impacts associated with these projects.

Marin Area Projects

North Marin Water District and Novato Sanitation District Stone Tree Golf Course Ponds

The newly-constructed Recycled Water Facility, located adjacent to State Route 37, commenced operation in June 2007. The 0.5-million gallons per day (mgd) treatment facility provides irrigation water to the Stone Tree Golf Course in Novato. The Novato Sanitation District (NSD) is responsible for treatment of wastewater to meet California Department of Public Health (CDPH) Title 22 requirements for unrestricted bodily contact, while the North Marin Water District is responsible for distribution. This project is a first step to introduce and expand the use of recycled water within the Novato Service Area. The facility will offset approximately 260.95 acre-feet per year (AFY) of potable water demand for landscape irrigation, reduce dependence on imported water supply from the Russian River, and reduce wastewater discharge into the San Pablo Bay.

Impacts Identified

Impacts typically associated with recycled water projects include short-term construction impacts to land use, air quality, traffic, noise, aesthetics, and water quality. Other potential impacts include disruption of habitat for wildlife species, and impacts to water quality from increased erosion and sedimentation during construction.

Marin Municipal Water District Desalination Project

The Marin Municipal Water District (MMWD) conducted a Seawater Desalination Pilot Study and produced an Engineering Report that examined the potential for developing a desalination facility to address drought-related drinking water supply issues. The report included cost estimates and design criteria. The Final EIR for the Desalination Project was released by the MMWD in December 2008 and certified by the Board of Directors on February 4, 2009³. The

³ Although the FEIR was certified, the project itself has not been approved. Desalination has been deferred until MMWD adopts a rate increase and the next 2-year budget. It is estimated that construction of the desalination facility would not occur for at least 1-2 years after project approval and permitting. On February 11, 2009, MMWD presented other water supply options to the Board, including revised operation procedures at reservoirs, potential connection with the Kastania pipeline (SCWA-operated), increased conservation efforts, and expanded recycled water use.

**TABLE 4-2
SUMMARY OF OTHER WATER RESOURCE PROJECTS AND RELATIONSHIP TO NBWRP**

| Project Impacts | Located in North San Pablo Bay Watershed? | Located in Bay Area Airshed? ⁴ | Imported Surface Water Supply Source | | NBWRP Contribution? | NBWRP Contribution Type | NBWRP Contribution Significant? | NBWRP Contribution Cumulatively Considerable? |
|---|---|---|--------------------------------------|---------------------|---------------------|---|---------------------------------|---|
| | | | Russian River | State Water Project | | | | |
| General Plan Development | Yes | Yes | Marin Sonoma | Napa | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |
| General Plan Infrastructure | Yes | Yes | Marin Sonoma | Napa | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |
| WATER RESOURCE PROJECTS | | | | | | | | |
| Marin County Projects | | | | | | | | |
| Stonetree Recycled Water Project | Yes | Yes | Yes | No | Yes | Water Supply GHG Emissions | Beneficial No | No No |
| MMWD Desalination | Yes | Yes | Yes | No | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |
| Sonoma County Projects | | | | | | | | |
| SCWA Water Supply Project | Yes | Yes | Yes | No | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |
| Russian River Integrated Flow and Restoration (RRIFR)/SWRCB 1610 Modification | Yes | Yes | Yes | No | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |
| Eel River and Potter Valley Project | No | No | Yes | No | Yes | Water Supply | Beneficial | No |
| North County Agricultural Recycling Project | No | Yes | Yes | No | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |
| City of Santa Rosa Subregional Urban Water Reuse System | No | Yes | Yes | No | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |

⁴ The term "airshed" is defined by the Bay Area Air Quality Management District (BAAQMD) as a geographical area of which, because of topography, meteorology, and climate, shares the same air. For analysis of the NBWRP, airshed refers to all areas that share the same air within the action area. This term is applicable in the analysis of cumulative impacts on air quality as a result of concurrent construction or operation of projects within the same spatial and temporal locations.

**TABLE 4-2 (Continued)
SUMMARY OF OTHER WATER RESOURCE PROJECTS AND RELATIONSHIP TO NBWRP**

| Project Impacts | Located in North San Pablo Bay Watershed? | Located in Bay Area Airshed? | Imported Surface Water Supply Source | | NBWRP Contribution? | NBWRP Contribution Type | NBWRP Contribution Significant? | NBWRP Contribution Cumulatively Considerable? |
|--|---|------------------------------|--------------------------------------|---------------------|---------------------|--|---------------------------------|---|
| | | | Russian River | State Water Project | | | | |
| Sonoma County Projects (cont.) | | | | | | | | |
| City of Petaluma Recycled Water Master Plan | Yes | Yes | Yes | No | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |
| Russian River County Sanitation District Equalization Basin Storage Program | No | Yes | Yes | | Yes | Construction Water Supply GHG Emissions | No Beneficial No | No No No |
| Sea Ranch Sanitation Zone Wastewater Treatment, Storage, and Disposal Modification Project | No | Yes | Yes | | Yes | Water Supply | Beneficial | No |
| SVCSD Trunk Line Project | Yes | Yes | Yes | No | Yes | Construction | No | No |
| SVCSD Lateral Project | Yes | Yes | Yes | No | Yes | Construction | No | No |
| North Coast IRWMP | No | No | Yes | No | Yes | Water Supply | Beneficial | No |
| San Francisco Bay Area IRWMP | Yes | Yes | Yes | | Yes | Construction Water Supply | No Beneficial | No |
| Sonoma Valley Groundwater Management Plan | Yes | Yes | Yes | No | Yes | Water Supply GHG Emissions | Beneficial No | No No |
| Napa County Projects | | | | | | | | |
| Napa Salt Marsh Restoration Project | Yes | Yes | Yes | No | Yes | Water Supply Construction | Beneficial No | No |
| Greater North Bay Area Projects | | | | | | | | |
| Town of Windsor | No | Yes | Yes | No | Yes | Water Supply | No | No |
| Regulatory and Other Cumulative Projects | | | | | | | | |
| 303(d) Listing of Waterways | Yes Yes | Yes Yes | Yes Yes | No No | Yes Yes | Water Quality Water Quality | No Beneficial | No No |
| Sonoma County Aggregate Resources Mining Plan | No No | Yes Yes | Yes Yes | No No | Yes Yes | GHG Emissions GHG Emissions | No No | No No |

proposed Desalination Project consists of raw water intake, pretreatment system, a reverse osmosis system, disinfection, brine disposal, and delivery infrastructure. The desalination plant, which could supply up to 15 mgd, would be located in San Rafael. “Raw water” or “feed water” from San Rafael Bay would be collected through an intake at the end of the proposed refurbished Marin Rod & Gun Club pier near the Richmond-San Rafael Bridge. Water would be subject to treatment and brine would be discharged back to the Bay. It has been determined that combining the brine with treated wastewater effluent would reduce the concentration of dissolved salts released into the Bay (URS, 2008).

Impacts Identified

The EIR identified two significant impacts that would occur as a result of project implementation. Short-term construction activities would inevitably cause temporary increased ambient noise, even with mitigation including limiting construction to daytime hours, using equipment with mufflers, locating power generators away from sensitive receptors, and providing notification of construction schedules. Implementation of the project would inevitably adversely affect the visual character of the San Quentin Ridge, however mitigation measures require consultation with a landscape architect to develop a landscaping plan to reduce the visual contrast between the facility and the ridgeline. The MMWD Desalination Project EIR cumulative impact analysis determined that the project would not contribute to cumulatively considerable impacts.

Relationship to NBWRP

Under Phase 1 and the Basic System, recycled water supplies from LGVSD would be served to Hamilton Field in North Marin Water District’s (NMWD) service area. Under Phase 1 and the Basic System, a potable offset of NMWD’s supplies would occur.

Under the Partially Connected System, facilities would be constructed to provide recycled water service to the Peacock Gap Golf Course, which currently uses potable water supplies served by MMWD for irrigation demands. Under the Partially Connected System, a potable offset of MMWD supplies would occur.

Sonoma Area Projects

Russian River Supply

Water Supply, Transmission, and Reliability Project (Water Project)

Sonoma County Water Agency (SCWA) proposed the Water Project to provide a safe, economical and reliable water supply to meet the defined current needs and future contractor demands within the SCWA service area by implementing water conservation techniques, increasing the amount of water that could be released from Lake Sonoma and diverted from the Russian River by the transmission system and expansion of water transmission facilities. The Water Project would provide water to the water contractors and other customers in Sonoma County and portions of Marin County. The Restructured Agreement for Water Supply between SCWA and eight public entities, including Cotati, Petaluma, Rohnert Park, Santa Rosa, Sonoma, the Town of Windsor, North Marin Water District, and the Valley of the Moon Water District,

authorizes SCWA to operate and maintain a water supply and transmission system that includes delivery limits consistent with the General Plans of participating cities. The Agreement also includes specific requirements for conservation, including BMPs defined by the California Urban Water Conservation Council, and authority to enforce compliance. It provides for the financing and funding of required Water Project facilities. Elements of the Water Project that have the potential to combine with impacts of the NBWRP include transmission system facilities constructed as part of the Water Project, including water production facilities, pipelines, tanks, pumps, and other related equipment.

Impacts Identified

The Notice of Preparation for the Water Project was published in February 2005 and the Draft Environmental Impact Report was released in 2008. The majority of environmental impacts of the Water Project identified in the EIR would occur at Lake Sonoma, along Dry Creek downstream of Lake Sonoma/ Warm Springs Dam, and along the mainstem of the Russian River downstream of the confluence with Dry Creek. Other project impacts would occur within the SCWA service area and at locations along routes of the transmission system and reliability features. The Water Project EIR includes implementation of facilities within the North San Pablo Watershed and within the San Francisco Bay Area Air Basin. Elements of the Water Project that may result in impacts similar to those identified for the NBWRP include the construction of the Annadel-Sonoma pipeline between three sets of water storage tanks: the Annadel Tanks in Santa Rosa, the Eldridge Tanks in Eldridge, and the City of Sonoma Storage Tanks.

Impacts related to these facilities include short-term and long-term environmental impacts. The EIR identifies construction-related impacts on visual quality, vegetation removal, and public access. Operation of components of the project would require additional electricity that would result in the consumption of non-renewable energy resources and increased greenhouse gas emissions.

Relationship to NBWRP

SCWA's Water Project proposes additional diversions on the Russian River, and construction of distribution facilities that would occur within the North San Pablo Bay Watershed in the vicinity of Petaluma and Sonoma. However, the NBWRP would not contribute to or affect proposed diversions from the Russian River system. The NBWRP would recover treated wastewater currently discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, the NBWRP would not contribute to significant cumulative water supply impacts.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the North San Pablo Bay Watershed and the San Francisco Bay Area Air

Basin. The NBWRP's potential contribution to these cumulative impacts is further discussed in **Section 4.3** below.

Russian River Instream Flow and Restoration Project and Modification of SWRCB Decision 1610

Over the last 14 years, the SCWA has been working with regulatory agencies, primarily the National Oceanic and Atmospheric Administration (NOAA Fisheries) to address fisheries issues in the Russian River watershed. Two salmonid species inhabiting the Russian River watershed, Chinook salmon and steelhead, have been listed as threatened under the federal ESA, and one species, coho salmon, has been listed as endangered under the federal ESA and under the California ESA. Protective regulations of the ESA prohibit the "take" of these species. "Take" is broadly defined in the ESA and its implementing regulations; it includes not only intentionally killing a protected species, but also actions that unintentionally result in actual harm to an individual of a protected species, including adverse modification of habitat.

Because SCWA's water supply facilities and operations have the potential to adversely affect the three listed species, SCWA entered into a Memorandum of Understanding (MOU) in December 1997 to participate in a consultation under Section 7 of the ESA. The other signatories of the MOU include the USACE (federal agency) and the National Oceanic and Atmospheric Administration (NOAA). In September 2008, NOAA Fisheries issued a Biological Opinion evaluating the impact of SCWA's and the USACE's operations on the listed species and identifying Reasonable and Prudent Alternatives (RPAs) and Recommended and Prudent Measures (RPMs) to be implemented by SCWA and the U.S. Army Corps of Engineers (USACE) to address impacts and potential impacts on listed salmonids. The Biological Opinion concluded that some elements of the USACE and SCWA activities in the Russian River watershed could result in an adverse modification of habitat and jeopardize the continued existence of coho salmon and steelhead in this evolutionary significant unit (ESU).

The RPA and RPM involve both immediate and long-term actions to improve habitat and fish populations. These RPAs and RPMs will guide USACE and SCWA operations to protect threatened or endangered salmonids in the Russian River watershed through the year 2018. Operational changes related to SCWA's water supply facilities include modifications to SWRCB's Decision 1610 to reduce instream flow requirements in the mainstem Russian River and Dry Creek to be more protective for salmonids, changes to how the Russian River estuary sand bar breaching is managed, and improvements to the fish screens and intake structures at the SCWA's Wohler and Mirabel facilities. Alternative actions to support reducing flows in the Russian and Dry Creek were also presented, and included a Dry Creek Bypass Pipeline between Warm Springs Dam and the confluence of Dry Creek with the Russian River, fish habitat enhancements to Dry Creek, and a groundwater banking program.

Modification of SWRCB Decision 1610

Central to the RMAs and RMPs is modification of SWRCB Decision 1610, which established minimum flow requirements for the Russian River in 1986. In May 2007, SCWA identified the need to begin the process of requesting long-term amendments to the instream flow requirements

for the mainstem Russian River and Dry Creek specified in the SWRCB's Decision 1610. These amendments are needed as a result of changes in operations of PG&E's Potter Valley Project (PVP) and changes in instream flow management identified in the Russian River Biological Opinion.

It has become apparent in recent years that the Russian River minimum instream flow requirement may no longer be appropriate. Decision 1610 was adopted before the listing of the three salmonid species under the ESA, and did not specifically address the importance of fall storage in Lake Mendocino to the Chinook salmon migration. Moreover, although Decision 1610 assumed that greater flows were always better for fishery resources, information developed as part of the Biological Opinion indicates that this may not be so, at least for salmonid species in Dry Creek, the Russian River, and the Russian River estuary. Decision 1610 expressly recognized that later fisheries studies might give rise to a need to change the minimum flows established by Decision 1610. Decision 1610 also expressly contemplated that flow changes might be needed in the event of a change in flows from PG&E's PVP, which has now occurred.

The analysis prepared as part of the Biological Opinion determined that lower summer flows in Dry Creek, the upper Russian River (above Healdsburg) and the estuary would improve habitat for the listed salmonid species, while increasing the pool of cool water available in Lake Mendocino to support the fall Chinook salmon migrations runs. Adjusting Decision 1610 flows to meet these fishery objectives would aid in the conservation and recovery of the listed salmonid species.

In 2002, 2004 and 2007 water storage levels in Lake Mendocino declined to dangerously low levels requiring actions to reduce releases and preserve storage. In 2002, the terms of Decision 1610 authorized the necessary reductions in stream flows, but that was not the case in 2004 and 2007. In both of those years, the SWRCB granted the Agency temporary urgency changes in its water right permits, approving temporary lower minimum instream flow requirements to allow water to be preserved in storage in Lake Mendocino. The situation during these years was due to the lack of precipitation during the winter storm season, and in 2007, to unexpectedly lower inflows from the PVP because of changes in the implementation of PG&E's FERC license.

SCWA has started conducting engineering feasibility studies to identify alternatives that could be considered in an EIR/EIS for amending Decision 1610. Alternatives could include a geomorphic reconfiguring of Dry Creek (to improve fish habitat, reduce bank erosion and allow for water supply releases), a Dry Creek Pipeline to divert water supply releases from Lake Sonoma around Dry Creek, and expansion of the conservation fish hatchery at Warm Springs Dam, as well as other alternatives and measures that may be identified. These feasibility studies are anticipated to be completed in 2010 and would allow for development of a project description for the EIR/EIS for amending Decision 1610. SCWA will also be initiating development and meetings of a stakeholder group that will be independently facilitated.

The process by which Decision 1610 was adopted took many years. Similarly, the process to modify Decision 1610 will take many years, and it is consistent with the SCWA's long-term goal of creating a sustainable, balanced system that meets the needs of SCWA's water contractors,

other water users, and the needs of the listed salmonid species. However, because the outcome of the process of modifying Decision 1610 cannot be known with any certainty now, the SCWA Water Project was developed under the assumption that Decision 1610 requirements would remain in effect.

Impacts Identified

The Russian River Integrated Flow and Restoration Project (RRIFR) Program EIR/EIS is scheduled for release in 2012, and the NOP for the EIR/EIS has not yet been released. The nature of impacts associated with the RRIFR Program are anticipated to be related to the interim and permanent changes in release patterns from Warm Springs Dam and Coyote Dam to enhance habitat for salmonids, habitat enhancement of six miles of Dry Creek, and from changes in estuary management to provide enhanced rearing habitat for salmonids. In general, these flow changes are proposed in order to enhance habitat conditions within Dry Creek, the Russian River Estuary, and the east Fork of the Russian River. Implementation of habitat enhancement in Dry Creek would have the potential for short-term construction impacts, including impacts to water quality, sensitive species habitat, cultural resources, land use, and recreational uses. Flow changes identified in the Russian River Biological Opinion would reduce flow levels during summer months. Potential impacts would be related to resulting water quality, reduced in-stream flow, impacts to recreational uses, socioeconomic impacts, and impacts to estuary flora and fauna.

Relationship to NBWRP

The RRIFR Program is proposed in order to address changes contemplated in Biological Opinion issued on September 24, 2008. All management actions are proposed for implementation within the Russian River Watershed, and no facilities would be constructed within the North San Pablo Bay Watershed.

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, the NBWRP would not contribute to direct or indirect impacts that may be associated with modification of Russian River hydrology to benefit listed salmonid species.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to these cumulative impacts is further discussed in **Section 4.3** below.

Eel River and Potter Valley Project

The Eel River watershed is located in Humboldt, Mendocino, Lake, Glenn, and Trinity counties. The Potter Valley Project, owned and operated by PG&E, is comprised of several main elements: Cape Horn Dam, a diversion tunnel, Scott Dam, Lake Pillsbury, and the Potter Valley Power

Plant. The Eel River Power and Irrigation Company constructed the Cape Horn dam and Van Arsdale Reservoir on the Eel River in Mendocino County in 1908. A diversion tunnel leads from the Eel River to the East Fork of the Russian River, and has been used to generate electrical energy at the Potter Valley Power Plant. Scott Dam was constructed at the headwaters of the Eel River, forming Lake Pillsbury. Water is released from the lake to the Eel River, then re-diverted downstream at Cape Horn Dam to the Potter Valley Power Plant through the diversion tunnel. The water continues through the East Fork of the Russian River to Lake Mendocino.

During the summer and fall months, water in the Russian River downstream of Coyote Valley Dam and above Dry Creek is derived from releases stored in Lake Mendocino, some of which is derived from imported Eel River Water via the Potter Valley Project. The Federal Energy Regulatory Commission (FERC) regulates interstate transmission of electricity, natural gas, and oil, and licenses hydropower projects. FERC also has exclusive jurisdiction to establish instream flow standards on federally-licensed hydroelectric projects and has primary authority to review the Potter Valley Project (PVP) instream flow standards in the Eel River. The quantity of water PG&E can divert to the Potter Valley Power Plant is limited by PG&E's FERC license, which will expire in 2022.

From 1922 to 1992, 159,000 AFY of water was diverted to the Russian River. In 1998 PG&E applied to FERC for an amendment to the Potter Valley Project license to alter flows to benefit Eel River salmonid species. PG&E instituted interim PVP flow regimes which led to a reduction in average annual diversion from the Eel River to 131,000 AFY from 1999 to 2004. FERC most recently amended the PVP license on January 28, 2004 (106 FERC 61,065, 2004). On June 2, 2004 FERC issued an order denying a request for a rehearing of the January 2004 order (108 FERC 61,266, 2004). On July 18, 2006, the United States Court of Appeals, Ninth Circuit issued a Memorandum Opinion denying all petitions for review of FERC's 2004 order (*California Sportsfishing Protection Alliance vs. FERC* 193 Federal Appeal 655). PG&E changed PVP operations during the 2006-2007 water year due to errors in PG&E modeling regarding PVP flow requirements. As a result it is estimated PVP flows into the Russian River watershed will now average 103,000 AFY.

Relationship to NBWRP

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, the NBWRP would not contribute to direct or indirect impacts that may be associated with current operations or future modification of the Potter Valley Project operations.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. However, the Potter Valley Project is

located outside of the San Francisco Bay Area Air Basin. Therefore, implementation of the NBWRP would have the potential to contribute to cumulative effects related to this project.

Recycled Water Projects

North Sonoma County Agricultural Reuse Project

In March 2007, the SCWA and the U.S. Bureau of Reclamation released a Draft EIR/EIS for the North Sonoma County Agricultural Reuse Project (NSCARP). The purpose of the proposed NSCARP is to provide an alternative source of agricultural water to reduce reliance on natural water supplies and address regional water supply and regulatory issues. The proposed NSCARP would supply a total of 7,234 acre-feet of recycled water annually. This water would be delivered to prospective users in Alexander Valley, Dry Creek Valley, and the Russian River Valley to irrigate cropland, offset surface water use, increase summer flows of the Russian River, and reduce agricultural diversions. The public would benefit from this project through the reduction of use of riparian water supplies, the reduction of wastewater discharges to regional waterways, and from the environmental benefit to fish and wildlife. The project would provide presently developed agricultural lands within the Russian River, Alexander, and Dry Creek Valleys with a reliable water supply, thereby reducing demands on the region's natural water sources. The main source of water for this project will be tertiary treated municipal wastewater generated and conveyed in the Geysers Pipeline. Sources of recycled water may be available from the City of Santa Rosa Laguna Subregional Wastewater Treatment Facility, Airport / Larkfield / Wikiup Wastewater Treatment Plant, Town of Windsor Wastewater Treatment Facility, City of Healdsburg Wastewater Treatment Facility, City of Cloverdale Wastewater Treatment Facility, and the Geyserville Wastewater Treatment Facility. The project would involve construction of 18 off-stream water storage facilities; construction of approximately 108 miles of pipeline for transmission and distribution; construction of related structures, booster pump stations, and other appurtenances (SCWA; Bureau, 2007). An Engineering Feasibility Report was submitted to the US Bureau of Reclamation pursuant to Title XVI in March 2006 that identified potential sources of available recycled water, methods of conveyance and storage, service area, and costs. The Bureau of Reclamation will review a feasibility study and the DEIR and approve or reject the project based on Bureau guidelines. The final EIR/EIS is scheduled for release in 2009.

Impacts Identified

Impacts typically associated with recycled water projects include short-term construction impacts to land use, air quality, traffic, noise, aesthetics, and water quality. Other potential impacts include disruption of habitat for wildlife species, and impacts to water quality from increased erosion and sedimentation during construction.

There is a need to maintain instream flows on the Russian River, while simultaneously providing water for other uses, so the recycled water would offset surface water from the Russian River and its tributaries for agricultural irrigation. Implementation of NSCARP would augment water supplies and potentially decrease direct agricultural diversions from the Russian River, which would enable the SCWA to release less water from storage in Lake Mendocino and Sonoma to

meet water demands and instream flow requirements. This would result in more water being conserved in storage in these reservoirs, which would provide more operational flexibility for the SCWA to benefit fisheries sources in the Russian River (SCWA, 2007).

Language in the NSCARP Draft EIR/EIS supports the protection of surface water, maintains existing water rights, and precludes any additional water rights and appropriations:

“The increased operational flexibility would not result in additional water being available for other uses because existing reservoir storage capacity, water rights, and flow requirements would not change. Though NSCARP would provide recycled water to be used in-lieu of potable water supplies, recycled water users who participate in NSCARP would not lose their existing water right, and their participation would not provide authorization for their existing water right to be used for other purposes or places of use not currently authorized. Therefore, NSCARP would not result in growth-inducing effects because the proposed project would not result in increased flows in the Russian River and any water that remains in the tributaries as a result of this project would not be available for appropriation by someone else” (SCWA, 2007).

No water right transfer or additional diversions will occur, but the DEIR/EIS anticipates that the growth and expansion of the nine incorporated cities in Sonoma County could contribute to agricultural land conversion to non-agricultural uses. The 1989 General Plan has policies that limit major expansions that could induce land conversion. Increased development could produce wastewater flows that exceed treatment capacity (SCWA, 2007).

Relationship to NBWRP

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system, and would be expected to contribute to the beneficial impacts identified for the NSCARP. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation within the North San Pablo Bay Watershed.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. However, the NSCARP is located outside of the San Francisco Bay Area Air Basin. Therefore, implementation of the NBWRP would not have the potential to contribute to cumulative effects related to this project.

City of Santa Rosa Subregional Urban Water Reuse System

The City of Santa Rosa has implemented the Santa Rosa Subregional Urban Water Reuse System, which provides sewage disposal and treatment, recycled water storage, conservation, recycled water reuse and/or disposal, industrial waste pretreatment, and infiltration and inflow reduction. The existing Subregional Urban Water Reuse System encompasses a large portion of Sonoma County, including the cities of Santa Rosa, Rohnert Park, Cotati, and Sebastopol, as well as Alexander Valley, Dry Creek Valley and the Russian River from Mirabel to north of Healdsburg.

Under the Santa Rosa Subregional Urban Water Reuse System, the City of Santa Rosa currently uses recycled water that is tertiary treated at the Laguna Wastewater Treatment Plant, to irrigate cropland, golf courses, playgrounds, pasture, and parks. The current reuse program produces 7,000 acre-feet of discharge annually (City of Santa Rosa, 2008). Adoption of Resolution No. 25337 authorized the revision of the Water Reuse Program that would allow the City to commit excess recycled water to other beneficial uses. Since current wastewater is treated to a tertiary level and there exists an excess of water that would otherwise be discharged, the City of Santa Rosa has identified opportunities and developed and updated the Recycled Water Master Plan allocate future reuse of recycled water for beneficial purposes.

The Recycled Water Master Plan is part of the Incremental Recycled Water Program (IRWP). In 2007, the City of Santa Rosa released the Draft Environmental Impact Report for the IRWP which analyzed potential significant impacts associated with implementation of the IRWP Recycled Water Master Plan. The purpose of the IRWP is to provide reliable treatment, recycling, reuse, and disposal of wastewater volume from growth anticipated in local General Plans. The DEIR analyzes the six elements of the IRWP which include conservation, infiltration and inflow reduction, urban reuse, agricultural reuse, Geysers expansion, and discharge. Implementation of all program elements was anticipated to provide up to 17,560.4 AFY of recycled water for beneficial reuse annually (City of Santa Rosa, 2007). The urban reuse element would require increased capacity at the Laguna Plant in order to provide recycled water for existing irrigation sites. Under the Plan, a dual recycled water system would be installed in new development to supply recycled water for industrial or non-potable processes. Pipelines would extend from the Laguna Plant to an urban reuse area. Approximately 1,800 million gallons (MG) of additional storage would be required for full implementation. It is estimated that the urban reuse element could utilize 6,446 AFY of recycled water per year. The agricultural reuse element would also require capacity upgrades at Laguna Plant to provide recycled water for crop irrigation and frost control in the North County and east of Rohnert Park. A pipeline would extend from the existing Geysers Pipeline to the Alexander Valley, Dry Creek Valley, and Russian River irrigation areas. The Plan would require 1,200 MG of storage to support irrigation in areas east of Rohnert Park and 2,900 MG storage to support irrigation in the Alexander and Dry Creek Valleys. It is estimated that the agricultural reuse element could accommodate growth of recycled water flows up to 6,400 billion gallons.

Impacts Identified

The IRWP EIR determined that components of the conservation, infiltration and inflow elements would be affected by ground rupture, but would not cause significant adverse impacts to other resources. After mitigation, all elements would have a less than significant impact on surface water quality, public health, biological resources, and wetlands. However, the IRWP EIR determined that implementation of the urban reuse, agricultural reuse, Geysers expansion, and discharge elements of the IRWP would contribute to significant and unavoidable environmental impacts on transportation, noise, air quality, land use, cultural resources, and visual resources. Transportation impacts would be limited to the construction period. Operation of all components would contribute to an increase in carbon dioxide emissions, as well as increased noise. Upgrades at the Laguna Plant would significantly impact air quality by producing objectionable odors and

emitting greenhouse gases. The direct discharge facility, advanced membrane treatment facility, storage facilities, and pump stations would be inconsistent with existing land use designations, and in some cases, particularly under the Agricultural Irrigation element that would be implemented in the City of Healdsburg, incompatible with adjacent land uses. The IRWP EIR determined that, if implemented in conjunction with NSCARP, there would be a cumulative impact on land use, due to facilities that would be inconsistent with existing land use designations. Storage facilities, in particular, would impact the visual character of the area. When considered with other projects, the IRWP would cumulatively degrade groundwater quality in existing and future wells, which could be hazardous to the public. Similarly, the drawdown of groundwater due to interception of base flow by reservoirs is a localized impact that could be cumulatively considerable if other entities proposing reservoirs for either recycled water or potable water storage also intercept base flow to reduce groundwater recharge.

Relationship to NBWRP

The Santa Rosa Subregional Urban Water Reuse System is proposed to provide recycled water facilities within the Santa Rosa area. The total flow to be managed by the Subregional System is estimated to be 17,560.4 AFY. Implementation of the program would be anticipated to provide a potable offset of 17,560.4 AFY, thereby providing a beneficial impact by reducing demands on Russian River supplies. All proposed facilities are within the Russian River Watershed, and no facilities would be constructed within the North San Pablo Bay Watershed.

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system, and would be expected to contribute to the beneficial impacts identified for the Santa Rosa Subregional Urban Water Reuse System. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, when considered with other recycled water programs within the region that would offset potable water demands on Russian River supplies, the NBWRP would contribute to a cumulative beneficial impact.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to these cumulative impacts is further discussed in **Section 4.3** below.

City of Petaluma Water Recycling Expansion Program

The City of Petaluma completed a Draft EIR for the Water Recycling Expansion Program (WREP) in July 2008, and released the Final EIR in October 2008. The City anticipates certification of the EIR City Council consideration on November 3, 2008. Construction is scheduled to begin in 2009. The WREP consists of recycled water use for agricultural and urban uses within the Urban Growth Boundary of the City of Petaluma and unincorporated areas of Sonoma County south and east of the City. The Program will maximize Petaluma's water

resources by increasing Petaluma's water recycling from about 2,149 to 3,284.9 AFY at buildout of the General Plan 2025. The project proposes to implement a number of recycled water facility improvements from 2008 through 2014. At buildout, the WREP would provide 1,995.5 AFY of tertiary treated recycled water, and 1,151.25 to 1,289.4 AFY of secondary treated recycled water. Of the 1,995.5 AFY, 1,424.48 AFY would contribute to potable offset (Winzler & Kelly, 2008).

The WREP consists of conveyance facilities, distribution pipeline, 2.2 MG storage tank for tertiary recycled water, 0.5 to 1.0 MG open reservoir for secondary treated water, a new pump station, and other appurtenances. The EIR evaluates near-term improvements (the storage tank and about 2 miles of pipeline) at a detailed project-level; the remainder of the improvements and the use of recycled water is evaluated at a program-level.

Impacts Identified

Significant impacts on cultural resources, ambient noise levels, and biological resources are anticipated, but would be mitigated to a less-than-significant level upon implementation of BMPs and other mitigation measures. In the WREP EIR cumulative impact analysis, increased greenhouse gas emissions as a result of project implementation would potentially exceed pre-project levels and conflict with AB 32 and its governing regulations. The EIR states that there is uncertainty about the effectiveness of State reduction measures and how they will apply to local governments. Therefore, it could not be determined that there would not be a cumulatively significant impact. The impact analysis also determined that construction activities, when considered with other projects, would be cumulatively significant. Other significant impacts to land use, agriculture, and biological resources were identified, but mitigation was prescribed to reduce the impacts to a less than significant level.

Relationship to NBWRP

The City of Petaluma Water Recycling Program is proposed to provide recycled water facilities within the City of Petaluma and surrounding area. Proposed facilities would be constructed within the North San Pablo Bay Watershed. Implementation of the program would be anticipated to provide a potable offset of 1,996 AFY, thereby providing a beneficial impact by reducing demands on Russian River supplies.

The NBWRP would recover treated wastewater discharged to North San Pablo Bay, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for this purpose. As such, it would have a beneficial effect by reducing irrigation demands on the Russian River system, and would be expected to contribute to the beneficial impacts identified for the Petaluma Water Recycling Program. This beneficial effect would also be applicable to groundwater and local surface water supplies that are currently used for irrigation. Therefore, when considered with other recycled water programs within the region that would offset potable water demands on Russian River supplies, the NBWRP would contribute to a cumulative beneficial impact.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction within the North San Pablo Watershed and long-

term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to these cumulative impacts is further discussed in **Section 4.3** below.

Wastewater Treatment Plant (WWTP) Infrastructure Projects

Russian River County Sanitation District Equalization Basin Storage Project

The Russian River Sanitation District prepared an EIR for the Russian River WWTP Equalization Basin Storage Project (Storage Project). This project would add increase wastewater equalization capacity at the WWTP. The Notice of Preparation was released in March 2006 and the Draft EIR was released in August 2007. The project is comprised of a 4.3 MG earthen storage basin and appurtenant features, including underground piping and pumps.

Impacts Identified

The DEIR for the Russian River Equalization Basin Storage Project identifies the following potentially significant, which will be mitigated to a less than significant level:

- water quality, as a result of erosion from excavation and construction;
- cultural resources, during construction activities;
- biological resources, specifically the northwestern pond turtle, nesting birds, including raptors, and jurisdictional waters;
- sensitive receptors, from noise generated by facility operation;
- traffic, during construction;
- air quality, during construction; and
- increased exposure of people and structures to hazardous materials, wildland fires.

Relationship to NBWRP

The Russian River WWTP Equalization Basin Storage Project is proposed to provide increased effluent storage at the existing WWTP. Proposed facilities would be constructed within the Russian River Watershed, and are proposed in order to more effectively provide treatment during high flow events. Impacts are related to the construction of proposed facilities.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP would not contribute to

other cumulative impacts when considered with WWTP improvements occurring outside of the North San Pablo Bay Watershed, due to the lack of geographic proximity. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Sea Ranch Sanitation Zone Wastewater Treatment, Storage and Disposal Modifications Project

The Sea Ranch area is in the northern coastal area of Sonoma County. In 2007, SCWA prepared a Draft EIR to analyze three project alternatives to address sewage inadequacies in the Sea Ranch area. The primary objectives of the Project are to provide a reliable wastewater treatment, storage and disposal method for the Sea Ranch Sanitation Zone and to reduce the possibility of discharge violations at the Central Treatment Plant during large storm events and periods of high flow. Under the preferred alternative, the Central Treatment Plant would continue to treat raw wastewater to a secondary level and the storage and capacity of the plant would be expanded. The preferred alternative would not include new conveyance pipelines, but would require additional effluent storage ponds, and other appurtenances. Once constructed, the Sea Ranch Sanitation Zone Wastewater Treatment, Storage and Modifications Project would provide wastewater service for failed septic systems at the south end of the Sea Ranch area.

Impacts Identified

The EIR, prepared by SCWA in 2007, identified impacts to air quality, cultural resources, and biological resources to be less than significant after mitigation under the preferred alternative. Impacts to biological resources would have a significant cumulative impact.

Relationship to NBWRP

The Sea Ranch Sanitation Zone Wastewater Treatment, Storage and Modifications Project would provide wastewater service for failed septic systems at the south end of the Sea Ranch area. Proposed facilities would be constructed outside of the North San Pablo Bay Watershed. Impacts are related to the construction of proposed facilities.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the San Francisco Bay Area Air Basin. The NBWRP would not contribute to other cumulative impacts when considered with WWTP improvements occurring outside of the watershed, due to the lack of geographic proximity. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Sonoma Valley County Sanitation District Trunk Line Project

In September 2007, SVCSD released the Initial Study/ Mitigated Negative Declaration (IS/MND) for the SVCSD Sewer Trunk Main Replacement Project. The project proposed to abandon and replace the existing trunk main in the SVCSD service area from south of Watmaugh Road, east of Broadway, west of Nathanson and Schell Creeks, to the SVCSD WWTP. Approximately 5,650 linear polyvinyl chloride pipe would accommodate additional flows from stormwater and groundwater infiltration, improve structural stability, and reduce sanitary overflows. The abandoned pipeline would be filled with cement-sand slurry.

Impacts Identified

Upon completion of an Initial Study/ Environmental Checklist, SCWA determined that although the Trunk Main Replacement Project could have a significant effect on the environment, revisions described in a Mitigated Negative Declaration would reduce potential effects to a less-than-significant level.

Relationship to NBWRP

The SVCSD Trunk Line Project is proposed to alleviate capacity constraints within the existing collection system of the SVCSD WWTP. Proposed facilities would be constructed within the North San Pablo Bay Watershed, and are proposed in order to reduce the occurrence of Sanitary System Overflows, thereby reducing impacts to water quality. Impacts are related to the construction of proposed facilities.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the North San Pablo Bay Watershed and San Francisco Bay Area Air Basin. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

SVCSD Sewer Lateral Ordinance

The SVCSD has proposed an amendment to the existing Sewer Lateral Ordinance to reduce inflow and infiltration, prevent sanitary sewer overflow, and to reduce influent into treatment plant. Potential sewer problems include broken or defective cleanout, missing drain caps, separated joints, or root penetration. Current user responsibilities include installation and connection, cleaning and clearing, and joint maintenance. The proposed amendment would require lateral testing at residences prior to the sale of the property, after repair or replacement of a building sewer, or for general protection of public health. The proposed amendment may be

updated in 2010-2011, and would require lateral testing for commercial or multiple family structures by a specified date and thereafter every ten years, after repair or replacement of a building sewer, or for general protection of public health. If a problem with a lateral is discovered, the owner would be required to repair the lateral and re-test it post-repair.

Impacts Identified

Impacts related to the implementation of the Sewer Lateral Ordinance would be limited to short-term construction impacts associated with lateral repairs. In general, lateral repairs are implemented between residences or commercial buildings and the roadway, and would not be anticipated to result in impacts beyond erosion of excavated areas. Over the long-term implementation of the Sewer Lateral Ordinance would be anticipated to reduce infiltration and inflow to local WWTPs, thereby reducing wet season peak flow events. This would provide operational benefits to WWTPs.

Relationship to NBWRP

The Sewer Lateral Ordinance would reduce infiltration and inflow to local WWTPs, providing operational benefits during peak wet weather events. Impacts are limited to the inspection and repair of individual laterals. The ordinance would include the Sonoma Valley; as such, some lateral repairs may occur within the recycled water service areas identified under the NBWRP.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water resource infrastructure within the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

North Coast Integrated Regional Water Management Plan

The North Coast Integrated Regional Water Management Plan (IRWMP) was adopted in 2007 to coordinate seven counties and seventy partnering entities and implement basin scale water management strategies. The North Coast Region covers all of Del Norte, Humboldt, Trinity and Mendocino counties, major portions of Siskiyou and Sonoma Counties and small portions of Glenn, Lake, Modoc and Marin. The plan provides guidance for future planning and management of North Coast waterways. The objectives of the plan are to conserve and enhance salmonid populations by protecting habitat and water quality, protect drinking water to ensure safety of public health, and provide adequate water supply with minimal environmental impacts, through an interagency approach. The plan acknowledges water supply issues and states water recycling

for compatible uses may alleviate the North Coast Region's reliance on rainfall. The plan is implemented through a variety of restoration, facility improvement, and erosion control projects, such as the Sonoma County Water Recycling and Habitat Preservation Project.

Relationship to NBWRP

Projects implemented under the North Coast IRWMP include water supply and recycled water facilities. Proposed facilities would be constructed outside of the North San Pablo Bay Watershed. Impacts are related to the construction of proposed facilities. Any impacts to water supply, water quality or water resources would occur outside of the North San Pablo Bay Watershed. Recognizing that a water supply is imported into the North San Pablo Bay Watershed, these project could affect the availability of water supply within the North San Pablo Bay Watershed.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water infrastructure projects proposed under the North Coast IRWP. However, all of those facilities are located outside of the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP would not contribute to other cumulative impacts when considered with water infrastructure improvements occurring outside of the watershed, due to the lack of geographic proximity. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

San Francisco Bay Area Integrated Regional Water Management Plan

The San Francisco Bay Area Integrated Regional Water Management Plan (IRWMP), published in November 2006 and adopted in January 2007, provides guidance for future planning and regional management of San Francisco Bay and its tributaries. The San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates water quality in San Mateo County, and major portions of Marin, Napa, Santa Clara, Alameda, and Contra Costa Counties. The objectives of the IRWMP are to protect and improve hydrologic functions, improve water supply reliability, protect and improve the quality of water resources, and enhance environmental resources and habitats. Planning and management challenges arise from the large geographic scope of the region and the diverse water management needs.

The San Francisco Bay Area IRWMP defines four "Functional Areas" for which a series of objectives, strategies, and projects are identified. The Functional Areas include the quality of water supply, wastewater and recycled water, stormwater management as it relates to flood protection, and habitat protection and restoration as it relates to watershed management (RMC,

2006). There are approximately 43 IRWMP projects related to wastewater and water recycling, including South Bay Aqueduct Recycled water Treatment Project, Redwood City Recycled Water Project, and the Pacifica Recycled Water Project, among others. These projects would provide recycled water for potable offset as a means of enhancing surface water quality in the San Francisco Bay and its tributaries, and improving water supply reliability.

The IRWMP also includes habitat restoration projects to address environmental challenges such as invasive species control, environmental water demands, and sensitive wildlife survival (RMC, 2006). The Sonoma Land Trust, in coordination with other participating agencies, has developed the Sears Point Restoration Project, a 2,327-acre restoration project located in Sonoma County on San Pablo Bay between the Petaluma River and Tolay Creek. The Sears Point Restoration Project would improve stormwater drainage, increase flood protection through construction of new levees, expand recreational opportunities by extending the San Francisco Bay Trail, restore 900 acres of upland areas with riparian species planting and native grassland management, control erosion and sedimentation, remove litter, enhance vernal pools, and restore 1,400 acres of diked baylands to a combination tidal and non-tidal marsh (RMC, 2006).

Relationship to NBWRP

NBWRP is part of the San Francisco IRWMP and would coincide with the various wastewater recycling projects and habitat restoration projects throughout the San Francisco Bay Region. Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water infrastructure projects proposed under the San Francisco Bay Area IRWMP. However, the majority of the water recycling projects is outside of the North San Pablo Bay Watershed; therefore, the NBWRP would not contribute to other adverse cumulative impacts when considered with water infrastructure improvements occurring outside of the watershed, due to the lack of geographic proximity. In general, concurrent implementation of the NBWRP and other IRWMP projects would generate long-term regional benefits for surface water quality and water supply reliability. The Sears Point Restoration Project coincides with the continuation of the Napa Salt Marsh Restoration Project and implementation of the proposed NBWRP, which would potentially result in regional benefits for sensitive habitat areas.

Sonoma Valley Groundwater Management Plan

Pursuant to the Groundwater Management Act California Water Code § 10750, the Sonoma Valley Groundwater Management Plan Basin Advisory Panel developed the Sonoma Valley Groundwater Management Plan to address the sustainability of local groundwater resources in light of groundwater depletion and increasing demands. The Basin Advisory Panel consists of representatives from SCWA, the City of Sonoma and the Valley of the Moon Water District, as well as members of the public, local business owners, farmers, and environmental interest groups. In 2007, the SCWA Board, City of Sonoma, Valley of the Moon Water District, and the Sonoma Valley County Sanitation District adopted the non-regulatory plan. The Plan identifies management practices that contribute to the sustainability of groundwater resources for future use for agricultural, industrial, residential, ecological, and recreational purposes that would be

implemented by local agencies to manage, protect, and enhance groundwater resources. Components of the Plan incorporate water quality control, monitoring, public involvement, and regional planning.

Relationship to NBWRP

The Sonoma Valley Groundwater Management Plan identified recycled water as one of the potential supply sources that could offset groundwater pumping within the area, and would assist in managing the basin for long-term sustainability.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of water infrastructure projects proposed within the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Napa Area Projects

Napa Salt Marsh Restoration Project

The Napa River Salt Marsh Restoration Project is a habitat restoration and salinity reduction project located at the northeast edge of San Pablo Bay adjacent to the Napa River, south of the City of Sonoma. This Napa-Sonoma Marsh Wildlife area consists of 9,850 acres of salt ponds, remnant slough and marsh formerly used as an industrial salt production facility. The California Department of Fish and Game (CDFG) purchased the property in 1994, SCWA worked with CDFG, the San Francisco Bay Regional Water Quality Control Board, the USACE and the Coastal Conservancy in development of a plan for restoration of these marshlands to support populations of fish and wildlife. The EIR for the Restoration Project was approved in April 2004, and the EIR/EIS was published in June 2004. Portions of restoration activities have been implemented, but the pipeline construction component has not been completed. The Water Delivery Option examined as Phase 1 in the SVCSD EIS includes the annual delivery of about 2,000 to 3,000 acre-feet of tertiary recycled water from the Sonoma Valley County Sanitation District for salinity reduction and subsequent agricultural production.

Impacts Identified

The Napa Salt Marsh Restoration Project EIR/EIS identified potential impacts associated with project implementation. The majority of significant impacts would occur as a result of construction activities. Construction impacts include degradation in water quality, disturbance of

special status species, release of hazardous materials, and increased dust. Other significant impacts from the project include removal of Soft Bird's Beak, erosion, creation of mosquito habitat, and potential for disturbance of human remains. Adverse cumulative impacts include hydrologic changes in the Lower Napa River, impacts to water quality, and colonization of invasive plant species. Beneficial cumulative impacts include establishment of sensitive plant communities, enhanced habitat suitability, increased sub-tidal habitat, and improved visual character.

Relationship to NBWRP

Napa River Salt Marsh Restoration Project EIR/EIS included construction of pumping and pipeline facilities from the SVCSD to provide recycled water to Pond 7 and 7A. These facilities are included in Phase 1 of the NBWRP. The provision of recycled water to these ponds is considered a beneficial impact, by providing a permanent water supply to provide dilution for bittern stored in these ponds.

Proposed facilities under the Napa Salt Marsh Restoration Project would be constructed within the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. Impacts associated with the restoration are primarily related to the construction of small scale facilities.

Construction and operation of the NBWRP would have the potential to contribute to cumulative impacts associated with short-term construction, including potential impacts to wetland features along the pipeline route. However, the NBWRP would provide environmental enhancement benefits by providing a long-term water supply to dilute bittern currently stored in Ponds 7 and 7A. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Greater North Bay Area

The following projects are related to water supply, yet fall outside the scope of the proposed project. These projects do not spatially or temporally overlap the proposed project, and are not anticipated to have a cumulative impact in conjunction with the proposed project. They are summarized to provide a complete spectrum of current, ongoing, and future recycled water projects. The project, impacts, and relevance to the project are described below.

Town of Windsor Water Reclamation Master Plan for Treatment, Storage, and Disposal

In October 2000, an EIR for the *Town of Windsor Water Reclamation Master Plan for Treatment, Storage, and Disposal* was released. The project was developed to implement infrastructure requirements for wastewater treatment, storage, and disposal to provide services for development anticipated under the *Town of Windsor General Plan*. The project would provide a technical framework for selecting the most appropriate wastewater reclamations system. The EIR examined the environmental impacts associated with the various elements of the project, which include Geysers recharge, pump stations, storage facilities, irrigation infrastructure, treatment capacity, and water conservation.

Impacts Identified

The EIR identified potentially significant, but mitigable, impacts from construction activities, irrigation, and discharge. Significant but mitigable impacts to geology and soils, water quality, land use and recreation, traffic, air quality, noise, and hazardous materials are anticipated. Significant and unavoidable impacts to biological resources, and land use are also anticipated. Subsequently, if the *Water Reclamation Master Plan* was implemented at the same time as other construction projects, there would be cumulative impacts associated with erosion, cultural resource disturbance, construction noise, and visual obstruction. Due to the short-term duration of construction activities and incorporation of mitigation measures, both project impacts and cumulative impacts would be less than significant. Habitat loss due to pond construction would be a significant and unavoidable impact, and subsequently, a cumulative impact.

Relationship to NBWRP

Environmental review, certification, and adoption of the *Water Reclamation Master Plan* has been completed. Proposed facilities would be constructed outside of the North San Pablo Bay Watershed. Impacts are related to the construction of proposed facilities. Any impacts to water supply, water quality or water resources would occur outside of the North San Pablo Bay Watershed. Recognizing that water supply is imported into the North San Pablo Bay Watershed from the Russian River Basin, this project could contribute to beneficial impacts to Russian River supplies associated with the offset of potable supplies for irrigation.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of the Town of Windsor Recycled Water Master Plan would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of wastewater treatment and water recycling facilities. However, all of those facilities are located outside of the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP would not contribute to other cumulative impacts when considered with infrastructure improvements occurring outside of the watershed, due to the lack of geographic proximity. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Wastewater Treatment Facility Projects

There are several wastewater treatment facility projects that have been proposed, approved or constructed for the existing Forestville County Sanitation District, Occidental County Sanitation, and the Russian River County Sanitation District in the west Sonoma County. The Cities of Cloverdale and Healdsburg have also proposed wastewater treatment modifications or expansions. These projects are examples of the wastewater infrastructure projects to improve or

increase treatment facilities in the Russian River Watershed. Any impacts related to these projects would occur outside of the North San Pablo Watershed. Some of these projects may also include recycled water elements in their implementation.

Impacts Identified

As previously noted for the Russian River County Sanitation District Equalization Basin Project, impacts anticipated to be associated with these types of projects include construction related impacts to geology and soils, water quality, land use and recreation, traffic, air quality, noise, and hazardous materials. Due to the short-term duration of construction activities and incorporation of mitigation measures, both project impacts and cumulative impacts would be less than significant. Long-term operational impacts would be associated with loss of habitat due to construction of new facilities, increased discharge to the Russian River, and increased energy use associated with new facilities. These types of impacts are anticipated to be reduced to a less than significant level through mitigation.

Relationship to NBWRP

Environmental review for these facilities is in various stages of completion. All five of the WWTPs are located outside of the North San Pablo Bay Watershed. Short-term impacts are related to the construction of proposed facilities, and would occur outside of the North San Pablo Bay Watershed and San Francisco Bay Area Air Basin. Any impacts to water supply, water quality or water resources would also occur outside of the North San Pablo Bay Watershed. However, recognizing that water supply is imported into the North San Pablo Bay Watershed from the Russian River Basin, these projects could alter the water quality of supplies generated in the Russian River due to increases in WWTP discharge to the Russian River System. Discharge from each WWTP is regulated by NPDES permits issued by the RWQCB. Compliance with permit requirements would be anticipated to reduce potential impacts to a less than significant level on a project by project basis.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Construction and operation of WWTP improvements operated by SCWA, the City of Cloverdale, Town of Windsor and City of Healdsburg and other WWTP operators within the Russian River Watershed would have the potential to contribute to cumulative impacts associated with short-term construction and long-term operation of wastewater treatment and water recycling facilities. However, all of those facilities are located outside of the North San Pablo Bay Watershed and the San Francisco Bay Area Air Basin. The NBWRP would not contribute to cumulative impacts when considered with infrastructure improvements occurring outside of the watershed, due to the lack of geographic proximity.

Urban and Suburban Construction Projects

There are a variety of suburban and urban residential, commercial, and roadway projects anticipated in the Marin, Sonoma, and Napa County areas (see **Table 4-1**). These are small to moderate scale local projects. In general, short-term construction impacts and permanent land use alteration, loss of habitat, and traffic impacts are associated with these types of local development projects. These projects are examples of the increase in development and infrastructure that is allowed under the local General Plans. The timing and implementation of these projects is uncertain at this time. However, for certain issue areas such as air quality, traffic, and water resources, these projects would have the potential to contribute to cumulative impacts in the event they are implemented during the construction timeframe of the NBWRP.

Impacts Identified

Construction of these projects would be expected to generate significant but mitigable impacts to geology and soils, water quality, biological resources, land use, air quality, noise, traffic, hazardous materials, cultural resources and aesthetics. These impacts would generally be reduced to a less than significant level through mitigation measures established on a project by project basis. However, some of these impacts may remain significant and unavoidable, on a project level and/or cumulative basis.

Relationship to NBWRP

Projects constructed within the same timeframe as the NBWRP would have the potential to contribute to cumulative impacts to geology and soils, water quality, biological resources, land use, air quality, noise, traffic, hazardous materials, cultural resources and aesthetics. These impacts would generally be reduced to a less than significant level through mitigation measures established on a project by project basis; however, some of these impacts may remain significant and unavoidable. In the event that construction of these projects coincide with the implementation of NBWRP projects, they would have the potential to contribute, both individually and collectively, to cumulative impacts within the issue areas noted above.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

It is anticipated that these facilities will be constructed within the North San Pablo Bay Watershed, and within the San Francisco Bay Area Air Basin. Therefore, the NBWRP would have the potential not contribute cumulative impacts when considered with infrastructure improvements occurring within the watershed and airshed. The NBWRP's potential contribution to cumulative impacts is further discussed in **Section 4.3** below.

Regulatory and Other Cumulative Projects

303 (d) Listing of impaired waterways in Marin, Sonoma, and Napa Counties

Water quality in California is regulated on both state and local levels. Under the Clean Water Act, the U.S. Environmental Protection Agency (USEPA) is responsible for water quality management and has delegated this authority to the State Water Resource Control Board (SWRCB). Section 303(d) of the Clean Water Act requires SWRCB to identify water bodies that do not meet water quality objectives. Each state submits an updated 303(d) list biannually. The list identifies impaired waterbodies, the pollutant or stressor causing the impairment, and establishes a priority for developing a control plan, or a Total Maximum Daily Load (TMDL). A TMDL is a program that has been developed to recover 303(d) list waterbodies, and defines the total amount of material a waterbody can regularly assimilate and still maintain water quality at levels that protects beneficial uses designated for that waterbody (SWRCB, 2008). SWRCB delegates this responsibility in part to the RWQCBs. A water quality control plan and an implementation plan are developed for each water body and pollutant/stressor.

Waterways in Marin County are regulated by the San Francisco Bay RWQCB. Within the project area in Marin County, the Petaluma River, San Rafael Creek, San Antonio Creek, Gallinas Creek, and Novato Creek appear on the currently applicable 2006 303(d) list of impaired water bodies. The Petaluma River is listed for diazinon, nutrients, pathogens, sediment, and nickel. The sources of these pollutants vary by pollutant. TMDLs for the Petaluma River are scheduled to be completed from 2005 to 2019. Urban runoff and storm sewers are the potential sources of diazinon in San Rafael Creek, San Antonio Creek, Gallinas Creek, and Novato Creek.

Waterways in southern Sonoma County and the San Pablo Bay Watershed are regulated by both the San Francisco Bay and North Coast RWQCBs. Rivers and streams located within the project area that appear on the currently applicable 2006 303(d) list of impaired water bodies include Sonoma Creek and the Petaluma River. Sonoma Creek is listed for contaminated pathogens, nutrients, and sedimentation/ siltation. Potential nutrient sources include agriculture, construction/land development, and urban runoff/ storm sewers. There are separate existing TMDLs which examine the water quality problem, identify the source of water impairment, and specify actions to create solutions (RWQCB, 2007). They identify actions that, once implemented, should reduce pathogens, nutrients, and sediment and contribute to the restoration and support of fisheries. Waterways in northern Sonoma County, including the Russian and Eel Rivers, are regulated by the North Coast RWQCB. Russian River is widely impaired by sedimentation and siltation, among other pollutants as a result of agricultural practices, channel erosion, highway, road, or bridge construction, hydromodification, and a range of other potential sources. The Lower, Middle, and Upper reaches of the Eel River are impaired by sedimentation and siltation as a result of range of pollutants from a combination of sources such as grazing, silviculture, and removal of riparian vegetation, among other sources. Water temperature is also impaired as a result of erosion, hydromodification, removal of riparian vegetation, and stream bank modification.

The Napa River in Napa County is regulated by the San Francisco Bay RWQCB. The Napa River, located within the project area, appears on the currently applicable 303(d) list for nutrients, pathogens, and sedimentation/siltation. The sources of these pollutants vary by pollutant, and are indicated in Table 3.4-1 in **Section 3.4, Water Quality**. TMDLs for the Napa River are scheduled to be completed from 2006 to 2008.

Listing of waterways outside of the North San Pablo Bay Watershed would not be anticipated to contribute to cumulative impacts, as these waterways are not tributary to North San Pablo Bay. However, recognizing that water supply is imported into the North San Pablo Bay Watershed from the Russian River Basin, listing of both the Russian River and Eel River systems as impaired, and the implementation of additional regulatory measures, including establishment of TMDLs, could alter the water quality of supplies generated in the Russian River and imported into the NBWRP service area. However, these impacts would be anticipated to be beneficial, as water quality in these systems would be improved.

Impacts Identified

Implementation of TMDLs would be anticipated to address pollutant loading in local water bodies through a number of point-source and non-point source control measures. The TMDL process is a tool for implementing water quality standards and is based on the relationship between pollutant sources and in-stream water quality conditions. The TMDL establishes the maximum allowable loadings of a pollutant that can be discharged to a water body while still meeting applicable water quality standards. The TMDL provides the basis for the establishment of water quality-based controls. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The TMDLs allocation calculation for each water body must include a margin of safety to ensure that the water body can be utilized for its State-designated uses. Additionally, the calculation must account for seasonal variation in water quality (USEPA 2002).

TMDLs are intended to address all significant stressors which cause or threaten to cause impairments to beneficial uses, including point sources (e.g., urban water discharges), nonpoint sources (e.g., runoff from fields, streets, range, or forest land), and naturally occurring sources (e.g., runoff from undisturbed lands). TMDLs may be based on readily available information and studies. In some cases, complex studies or models are needed to understand how stressors are causing water body impairment. In many cases, simple analytical efforts provide an adequate basis for stressor assessment and implementation planning. TMDLs are developed to provide an analytical basis for planning and implementing pollution controls, land management practices, and restoration projects needed to protect water quality. States are required to include approved TMDLs and associated implementation measures in State water quality management plans. Within California, TMDLs are implemented through RWQCB Basin Plans. The basin planning process has been certified as functionally equivalent to and therefore exempt from CEQA's requirement to prepare and EIR or a Negative Declaration. The RWQCB's regulations at Title 23 California Code of Regulations, § 3775 et. seq. describe the environmental documents required for planning actions. However, the implementation of TMDLs is anticipated to be largely beneficial to water quality.

Relationship to NBWRP

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Implementation of the NBWRP would reduce the amount of treated wastewater discharged into tributaries of North San Pablo Bay. As noted in **Section 3.4, Water Quality**, it is anticipated that this reduction in discharge would have an incremental, but beneficial, effect by reducing the volume of treated wastewater discharged to tributaries of North San Pablo Bay. Therefore, the NBWRP's contribution to potential cumulative impacts related to water quality in impaired water bodies within the North San Pablo Bay Watershed is considered beneficial.

Gravel Mining and the Aggregate Resources Mining Plan

Gravel mining is a common practice along the middle reach of the Russian River. Demand for aggregate resources is expected to remain constant for the next 20 years, but the types of resources demand is expected to change. Policies in the Aggregate Resources Mining (ARM) Plan phase out terrace pit mining and will not permit new terrace pit mining proposals after 2006, but still allow instream mining to continue. There are currently 18 terrace sites, however implementation of the ARM Plan limits extraction to a sustainable level. The Sonoma County ARM Plan, adopted in 1981 and updated in 1994 is a document that provides the regulatory guidelines for management of aggregate mining. It consisted of a program EIR on rock and gravel mining within the County, and a specific management plan to regulate those resources. The ARM Plan includes:

- the Aggregate Mining Plan: lands available for future supplies of aggregate material
- Managed Resources/ Open Space Plan: protection of riparian habitats, reclamation, and agricultural land preservation
- Identification of mining operations, including terrace mining, carried out in flood plain

Impacts Identified

Gravel mining causes environmental impacts like erosion, incision of tributaries, and channelization.

Relationship to NBWRP

The ARM Plan may propose to continue, reduce, or eliminate mining of gravel and sand aquifer and terraces of the Russian River. All mining activities would occur outside of the North San Pablo Bay Watershed. However, recognizing that water supply is imported into the North San Pablo Bay Watershed from the Russian River Basin, implementation of gravel mining under the ARM Plan could affect water quality of supplies imported into the North San Pablo Bay Watershed.

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation.

Implementation of AB 2121 - Policy for Maintaining Instream Flows

To protect flows that support threatened and endangered anadromous fish, National Marine Fisheries Service (NMFS) and the CDFG jointly developed “Guidelines for Maintaining Instream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Coastal Streams” for new applications in 2002. On September 30, 2004, the Legislature responded to pressure from conservation groups and enacted Water Code section 1259.4 [AB 2121 (Stats. 2004, Ch. 943, §§1-3)], which requires the SWRCB to adopt a policy for principles and guidelines to maintain instream flows in coastal streams within the counties of Marin, Sonoma, Napa, Mendocino and Humboldt by January 2008. The geographic scope also includes the Mattole River to San Francisco and coastal streams entering North San Pablo Bay. Shortly after AB 2121 was signed, two conservation groups, Trout Unlimited and Peregrine Audubon society filed a petition to assist the SWRCB in implementation. To satisfy AB 2121 commitments, SWRCB developed Resolution 2005-0070, and drafted the “Policy for Maintaining Instream Flows” (2007).

The purpose of the instream flow requirements established under this policy is to protect native fish populations and fishery resources. By implementing seasonal limits on diversions, minimum bypass flow requirements, and limits on maximum cumulative diversions rights within a watershed, the policy encourages more natural hydrograph responses, which would be more conducive to the survival of anadromous fish. The SWRCB will consider whether to include enforcement provisions in the AB 2121 streamflow protection policy.

Identified Impacts

It is anticipated that the policy would increase wintertime flow and duration in local streams by requiring a minimum bypass flow at local diversion points. This would have beneficial impacts on biological resources, riparian habitat, fisheries, water quality and water resources.

Relevance to NBWRP

Wastewater generated within the North San Pablo Bay Watershed is collected, treated, and discharged to North San Pablo Bay by four WWTPs. The NBWRP would recover treated effluent prior to its release, treat that water to Title 22 standards, and distribute it for irrigation uses to offset the use of potable supplies for irrigation. As such, it would have a beneficial effect by reducing irrigation demands on Russian River, groundwater, and local surface water supplies that are currently used for irrigation. This includes local surface water supplies that are impounded from streams and used for irrigation. Provision of recycled water by the NBWRP would provide recycled water offset for supplies that may currently be diverted from instream flow. As such, the

NBWRP would have a beneficial contribution to cumulative increases in instream flow associated with implementation of AB 2121.

Title XVI Water Reuse Program

The United States Bureau of Reclamation's (Reclamation) Title XVI Water Reuse Program, was established in response to droughts for six consecutive years during the 1980s and 1990s in the western United States. Under Title XVI, the Secretary of the Interior is responsible for identifying opportunities for water reuse. The purpose of Title XVI is to supplement the water supply by reclaiming, recycling and reusing water from agricultural drainage, wastewater, or other low quality water supplies. Municipal and irrigation district projects in the seventeen western states are eligible for Title XVI funding. An original rationale was to help Southern California reduce their reliance on Colorado River water. There are 33 projects under Title XVI, mainly concentrated in Southern California, but also located in Northern California. A feasibility study for each project must be approved by the Secretary of the Interior prior to enrollment in the program. Projects are approved and evaluated on an individual basis, and they are eligible for federal grants for a maximum of \$20 million or up to 25 percent of the total project cost. Participation in Title XVI grants the authority to design and construct reclamation and reuse facilities, and deliver water for irrigation, groundwater recharge, wildlife enhancement, industrial, and recreational purposes. This is only the active federal program providing local municipalities and irrigation districts with financial and technical assistance for the design and operation of recycled water facilities. Other funding is available through the Clean Water Act and the Safe Drinking Water Act State Revolving Fund.

Relationship to NBWRP

NBWRP is within the Bureau of Reclamation's Title XVI Program, and as such, is eligible for funding under the program. Reclamation has established guidelines for implementing the Title XVI program and applying it to projects. This process will be used by Reclamation in distributing funds under Title XVI. The level of available funding is established by Congress, and is not unlimited. Therefore, each of the projects that are funded, will, by definition of the Title XVI program, affect the availability of funding for other projects.

In the event other projects are not funded, this could contribute to two general cumulative effects relating to these other projects. First, the construction and operational impacts of these projects would be avoided. Second, the beneficial impacts of these projects, primarily related to offset of potable water supplies through the use of recycled water, would not occur. It should be noted that participation in the Title XVI program by NBWRA does not preclude other projects from being funded under Title XVI, at the discretion of Reclamation and the U.S. Congress. As such, although authorization and appropriation of funds to NBWRA Member Agencies could, by definition, reduce the amount of funding available under the Title XVI for other projects, such appropriations, both individually and cumulatively, are subject to the discretionary action of the Reclamation and the U.S. Congress. Therefore, the NBWRP's contribution to this cumulative effects is no less, and no greater, than any other project participating in the program. Therefore, this contribution is not cumulatively considerable.

4.3 Description of Cumulative Effects

This section reviews the potential cumulative effects of constructing the NBWRP concurrently with other Sonoma, Napa, and Marin County projects. Additionally, the geographic scope of potential cumulative impacts varies by issue area, and is defined below. Since the Action Alternatives represent incremental development of recycled water facilities, the cumulative impact analysis is based on the “worst case scenario” of all of the increments combined. For example, the cumulative impacts associated with construction will increase incrementally with each alternative.

4.3.1 Construction Related Impacts

Impacts 4-1: Construction-related Cumulative Impacts. Concurrent construction of several projects within the Sonoma, Napa, and Marin County areas could result in cumulative short-term impacts associated with construction activities. If implemented at the same time as other construction projects, construction of facilities under all three of the alternatives could contribute to potential short-term cumulative effects associated with erosion, cultural resource disturbance, disturbance of adjacent land uses, traffic disruption, dust generation, construction noise, aesthetics, air quality, biological resources, hazardous materials, water quality, public services and utilities. However, construction-related impacts would not result in long term alteration of the environment, and could be mitigated to less than significant levels through the use of mitigation measures identified throughout Chapter 3. (Less than Significant with Mitigation)

Construction of the specific facilities under the selected alternative would potentially coincide with other proposed infrastructure projects in the project area. Due to their short-term nature, and the inclusion of appropriate mitigation measures as established in **Chapter 3.0**, NBWRP’s contribution to cumulative impacts is not considerable. The following discussion reviews construction related impacts, and the potential cumulative contribution of both the Proposed Action, and the other projects identified within the Sonoma, Napa, Marin County area.

Water Quality

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could result in increased erosion and subsequent sedimentation and stormwater pollution, with impacts to water quality in downstream water bodies and/or storm drain capacity. In particular, degradation of surface waters could result from construction activities, including construction of pipelines, pump stations, storage, and WWTP improvements. Additionally, discharge of groundwater, release of fuels, or release of other hazardous materials associated with construction activities could degrade water quality.

SWRCB has issued a General NPDES Permit to address potential impacts related to construction activities. This General Permit has been issued to ensure that individual projects implement its fair share of mitigation measures designed to alleviate cumulative impacts to water quality. The General Permit mandates that projects disturbing greater than one acre develop and implement a

Storm Water Pollution Prevention Plan (SWPPP) identifying BMPs to reduce erosion of disturbed soils and release of hazardous materials into water courses. Preparation of the SWPPP and compliance with the measures identified in the SWPPP would ensure compliance with state regulatory policies to minimize the potential for water quality impacts from construction activities associated with the proposed project. As such, the potential contribution to water quality impacts associated with the proposed project would be rendered less than cumulatively considerable through implementation of **Measures 3.4-1a** as identified in **Section 3.4, Water Quality** and **Mitigation Measure 4.1a** below.

Biological Resources

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could result in temporary impacts to biological resources in the project area. Potential impacts during construction include temporary disturbance and/or permanent loss of wetlands and other Waters of the United States (U.S.), under regulatory jurisdiction of the USACE (CWA Section 404), RWQCB (CWA Section 401), and CDFG (Fish and Game Code Section 1601-1616). These impacts are limited to areas along the recycled water pipelines and at the proposed storage reservoir sites. Potential jurisdictional features are identified in **Section 3.5, Biological Resources**.

Impacts to Western Pond turtle, California red-legged frog, Chinook, and steelhead could occur during construction operations. Construction could also temporarily impact nesting habitat for golden eagle and Swainson's hawk. Additional impacts due to construction would affect common plant and animal species. All of these impacts will be mitigated to a less than significant level upon project completion by the implementation of mitigation measures in **Section 3.5, Biological Resources** and **Mitigation Measure 4.1a** below. As such, NBWRP's contribution to short-term impacts to biological resources would not be cumulatively considerable.

Land Use

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could temporarily generate noise, dust, visual intrusion, and construction traffic as well as street and access disturbance that could affect adjacent land uses. The sensitive receptors that are adjacent to components of the proposed project include single- and multi-family residences, schools, and churches (See **Section 3.9, Noise**, **Section 3.7 Traffic**, and **Section 3.8 Air Quality**). The NBWRP's contribution to this cumulative disturbance includes construction activities associated with the recycled water pipeline construction, excavation for the operational and capacity storage reservoirs, and grading and construction for booster pump stations. As noted in **Section 3.6, Land Use, Planning and Recreation**, this construction related disturbance to surrounding land uses would not be considered significant on an individual project basis, due to the temporary nature of construction activities, and the mitigation measures identified in **Section 3.6, Land Use Planning and Agriculture**, to minimize these impacts to the degree feasible. When considered in combination with the other Sonoma, Napa, and Marin

County area projects identified, the proposed project's disturbance of land uses adjacent to the project area would not result in a cumulatively considerable contribution.

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would also result in the temporary disruption of recreational resources, such as parks and bikeways, due to noise and construction traffic as described in **Section 3.13, Recreation**. Construction of pipelines would occur primarily in roadway right-of-ways along existing bike trails. The disruption to such recreational facilities would be temporary, as the pipeline network would be underground and surface restoration after construction would return disrupted areas to their original condition. Temporary disturbances would be mitigated to a less than significant level with the mitigation identified in **Chapter 3.0** and **Mitigation Measure 4.1a** below. As such, the contribution of the proposed project to cumulative recreational resource impacts would not be considerable.

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would also result in the temporary disruption of agricultural resources, as identified by the Farmland Mapping and Monitoring Program. Construction of the project would disturb, directly and indirectly, Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Grazing Land, and farmland under Williamson Act contract. Due to the nature of this disturbance, however, the adverse cumulative impact is less than significant. Over the long term, there is potential for a beneficial cumulative impact related to agricultural production as a result of availability of a more sustainable water supply that would be more resilient during drought conditions.

Transportation and Traffic

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would intermittently and temporarily generate increases in: vehicle trips by construction workers and construction vehicles on area roadways, traffic delays, and potential traffic safety hazards for vehicles, bicyclists and pedestrians on public roadways. Construction may temporarily restrict access for general traffic and emergency vehicles, will increase parking demands in the vicinity of the project and may cause permanent damage to road pavement. Construction-related impacts to traffic associated with the NBWRP would be short-term. As identified in **Section 3.7, Transportation and Traffic**, the proposed pipeline routes may directly overlap with projects that would occur along roadways identified in **Table 4-1**, including roadway improvements proposed by Sonoma County Transportation and Public Works Department (State Route 12, Adobe Road); Caltrans (Duhig Road); City of Napa (various roadways); and the City of Novato Public Works Department (Olive Avenue, Diablo). The cumulative impact on traffic could be significant. This impact would be reduced to less-than-significant levels by implementation of **Mitigation Measure 4.1a**. Further, as noted in **Section 3.7, Transportation and Traffic**, implementation of mitigation measures described in

Section 3.7, including preparation of a Traffic Control Plan, would reduce potential impacts to a less than significant level. Therefore, NBWRP contribution to construction traffic impacts would not be cumulatively considerable.

Air Quality

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions. The project could also generate greenhouse gas (GHG) emissions; including those associated with construction equipment, increases in vehicle traffic, and secondary operational increases resulting from electricity use would overlap with similar sources of GHG emissions from other projects. These potential impacts contribute to overall impacts to the San Francisco Bay Area air basin in which the project is located. As described in **Section 3.8, Air Quality**, the Bay Area air basin is classified as non-attainment for State PM10 and PM2.5⁵ standards as well as State 1- and 8-hour ozone standards. With respect to federal standards, the BAAQMD is classified as marginal non-attainment for the 8-hour ozone standard, which is treated as a significant cumulative impact for purposes of this analysis. However, as discussed below and in **Section 3.8, Air Quality**, increases in air pollutant and GHG emissions from these sources associated with NBWRA projects would be minimal, and the contribution from NBWRP would not result in a significant increase in cumulative GHG emissions.

Project construction would generate particulate matter and other criteria pollutants, primarily through excavation activities, construction equipment exhaust, haul truck trips, and related construction worker commute trips. This impact would be temporary on a local level, lasting through the duration of the project. Construction activities for this project would occur in the immediate vicinity of the facility site under excavation at a given time. As indicated above, emissions from construction vehicles will potentially impact nearby residential uses. On a regional level, emissions resulting from vehicles associated with the project would incrementally add to regional atmospheric loading of ozone precursors during the short-term construction period. BAAQMD Guidelines recognize that construction equipment emits ozone precursors, but indicate that such emissions are not expected to impede attainment or maintenance of ozone standards in the Bay Area (BAAQMD, 1999). Similarly, mitigation will be required to control respirable particulate matter (PM10) emissions rendering their impacts less than significant. As the BAAQMD's emissions inventory and associated regional air quality plan account for construction-related emissions of criteria pollutants, they are not expected to impede attainment or maintenance of ozone or carbon monoxide standards in the Bay Area. As such, the potential contribution to air quality impacts associated with the Project would be rendered less than cumulatively considerable through implementation of **Measures 3.8-1a and 3.8-1b** identified in **Section 3.8, Air Quality** and **Mitigation Measure 4.1a** below.

⁵ Particulate matter that have a size 10 microns and 2.5 microns.

Noise

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would generate short-term noise associated with construction equipment and construction traffic. Construction activities are anticipated to temporarily and intermittently raise noise levels above ambient levels. With implementation of **Mitigation Measure 4.1a** below and mitigation measures identified in **Section 3.8, Noise**, the proposed project's contribution to noise impacts would be rendered less than cumulatively considerable.

Public Services and Utilities

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could result in temporary, planned or accidental disruption to utility services, and require short-term police and fire protection services to assist in traffic management or in the event of an accident. No effects to utility customer service are anticipated; therefore, the proposed project would not contribute to cumulative effects related to utilities.

Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** would have the potential to contribute to service demands for police and fire services in the event of an accident. For NBWRP, this need would be limited to safety inspection and fire-suppression during construction. Construction of the recycled water pipelines would be primarily limited to existing right-of-way, but could involve temporary road closures, lane closures, and other traffic controls that could interfere with an adopted emergency response plan or emergency evacuation plan. No long-term public service needs would be associated with project implementation, and no permanent road closures would be required. Implementation of mitigation measures in **Section 3.11, Public Services and Utilities**, and **Mitigation Measure 4.1a** below would reduce impacts to utilities and emergency service providers to less than significant. As such, the NBWRP's contribution to the potential for disruption to public services would not be cumulatively considerable.

Hazardous Materials

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** could result in an increase in risk of exposure (human and the environmental) to hazardous materials, including through excavation, spills or releases. As identified in **Section 3.10, Hazardous Materials**, this potential is considered low, given review of available information and existing land uses along the pipeline corridor and at facility site locations. Implementation of mitigation measures in **Section 3.10, Hazardous Materials**, and **Mitigation Measure 4.1a** below will reduce potential impacts to a less than significant level on a project basis. As such, the NBWRP's contribution to the potential for disturbance of hazardous materials would not be cumulatively considerable.

Aesthetics

Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area (**Table 4-1**) and other water and wastewater infrastructure projects identified in **Section 4.2.4** located within the same viewsheds would result in short-term visual impacts during construction. Construction activities would require the use of heavy equipment and storage of materials at the construction zone. During construction, excavated trenches and stockpiled soils, pipe, and other materials within the construction easement would constitute negative aesthetic elements in the visual landscape that would directly affect the area. The NBWRP would result in the temporary disturbance of views along roadways and of agricultural fields during pipeline construction

Excavated trenches, stockpiled soil, and other materials within the construction area would constitute negative aesthetic elements in the visual landscape. As noted in **Section 3.14, Aesthetics**, these impacts would be temporary during project construction, and would not be considered significant on a project basis. Following construction, the recycled water pipelines would be located entirely below-ground and would be visually unobtrusive. Pumping stations would be located below grade to the degree feasible, and integrated with the surrounding visual character. Improvements to provide tertiary treatment and storage would occur onsite at existing WWTPs, and would not alter the existing visual character of those facilities. Disturbed areas will be restored to their previous state upon project completion. Due to the limited nature of these improvements, views from residential areas and recreational facilities would not be adversely affected. Implementation of **Measure 3.14.1a** and **Mitigation Measure 4.1a** below would reduce long-term visual impacts to less-than-significant levels. As such, the NBWRP's contribution to the potential for disruption to visual resources and would not be cumulatively considerable.

Mitigation Measures

Mitigation Measure 4.1: Member Agencies shall coordinate construction activities along selected alignments to identify overlapping pipeline routes, project areas, and construction schedules. To the extent feasible, construction activities shall be coordinated to consolidate the occurrence of short-term construction-related impacts.

Impact Significance after Mitigation: Less than Significant.

4.3.2 Long-Term Impacts

Impact 4.2: Cumulative Long-term Impacts resulting from Seismic Events. Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term risk of upset impacts related to groundshaking and surface fault rupture during major earthquakes. (Less than Significant)

Components of the NBWRP could be exposed to damage from earthquakes and geologic hazards. In the event of a catastrophic failure, areas downstream of pipelines or storage facilities could

experience localized flooding. Groundshaking and surface fault rupture during major earthquakes on nearby active faults could cause structural damage or collapse of facilities. Ground failure, including slope failure, differential settlement, loss of bearing strength, could occur beneath facilities, resulting in structural or mechanical damage and secondary effects related to recycled water release.

The project area is situated along the Rodgers Creek Fault, which is anticipated to experience significant seismic activity by 2032 (Rodgers, 2006). Failure of facilities that are built as part of the NBWRP, in conjunction with the failure of other projects in the area, could result in potential disruptions to irrigation supplies. Considering that geohazards are unavoidable and unpredictable, NBWRP facilities would be exposed to damage from earthquakes and geologic hazards. Implementation of standard design criteria and appropriate design measures, would reduce this impact to less than significant. Therefore, the NBWRP's contribution to this impact would not be cumulatively considerable.

Impact 4.3: Cumulative Long-term Impacts on Water Resources. Concurrent construction of NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term impacts to water resources, water quality, and flooding. (Less than Significant)

Construction of the NBWRP, concurrent with other projects with Sonoma, Napa, and Marin Counties, and other water and wastewater infrastructure projects occurring within the North San Pablo Bay Watershed, would potentially contribute to surface water, water quality, and flooding impacts due to alterations of drainage patterns and increases in impervious surface areas. Increases in impervious surface area would be limited to treatment facilities and pump stations at existing WWTPs, which would be integrated into existing drainage infrastructure. Pump stations located along proposed pipeline routes would be limited to 1,000 square feet per facility. These facilities would not substantially contribute to runoff within the watershed during storm events. Therefore, the NBWRP's contribution to cumulative impacts to water resources, water quality, and flooding are not cumulatively considerable.

Implementation of NBWRP would reduce the amount of treated effluent discharged to tributary to the North San Pablo Watershed. This would have an incremental, but beneficial cumulative impact on water quality in receiving waters.

Implementation of NBWRP would offset the use of potable water supplies for irrigation, including imported surface water supplies, groundwater, and local surface water supplies. This would have a beneficial cumulative impact on water supply.

Impact 4.4: Cumulative Long-term Impacts on Groundwater. Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term impacts to groundwater resources and groundwater quality. (Less than Significant)

Construction of the NBWRP, concurrent with other projects with Sonoma, Napa, and Marin Counties, and other water and wastewater infrastructure projects occurring within the North San Pablo Bay Watershed, would potentially contribute to alterations in groundwater due to increases in impervious surface areas and offset of groundwater supplies used for irrigation. Increases in impervious surface area would be limited to treatment facilities and pump stations at existing WWTPs, which would be integrated into existing drainage infrastructure. Pump stations located along proposed pipeline routes would be limited to 1,000 square feet per facility. These facilities would not substantially alter groundwater recharge areas. Therefore, the NBWRP's contribution to cumulative impacts to groundwater recharge are not significant.

Implementation of the NBWRA would offset the use of potable water supplies for irrigation, including imported surface water supplies, groundwater, and local surface water supplies. As identified in **Section 3.3, Groundwater Resources**, this would have a beneficial cumulative impact on groundwater pumping, particularly in the MST Area and Sonoma Valley.

Impact 4.5: Cumulative Long-term Impacts on Biological Resources. Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area, and other water and wastewater infrastructure projects, could result in cumulative long-term impacts to biological resources. (Less than Significant with Mitigation)

Sensitive Marsh Bird and Mammal Species

The SVCSD Napa Salt Pond Pipeline has the potential to impact marsh habitat for California black rail, California clapper rail, and western snowy plover. As noted in **Section 3.5, Biological Resources**, implementation of **Option B** for the SVCSD Napa Salt Pond Pipeline would substantially reduce the potential for these impacts, by implementing a route that would avoid marshland areas along the majority of its route. Construction of pipeline from the existing parking area on Duerig Road to the outfall location (approximately 0.7 miles) would still have the potential for short-term construction related impacts to sensitive marsh bird and mammal species. Implementation of **Mitigation Measures 3.5.7** established in **Section 3.5, Biological Resources**, which includes avoidance of the nesting season (February 1 through September 14), minimization of impact area, pre-construction survey, construction crew training, and construction monitoring, would reduce potential impacts to sensitive marsh bird species to a less than significant level. Similarly, implementation of **Mitigation Measures 3.5.10** established in **Section 3.5, Biological Resources**, which includes minimization of the construction area, establishment of exclusion fencing, clearance of the construction area through pre-construction trapping and relocation of salt marsh harvest mice and ornate shrew individuals, construction crew training, and construction

monitoring, would reduce potential impacts to a less than significant level. Permanent loss of potential marsh bird and mammal habitat for the NBWRP would be limited to the construction of the pipeline from the existing roadway to the outfall structure, estimated at 2,000 square feet (0.04 acre), and the outfall area, estimated to be approximately 400 square feet (0.01 acre). As necessary, compensatory mitigation would be established as part of the USACE 404 Permit and CDFG 1600 permitting processes.

Other projects within the Napa Salt Pond area could also contribute to disruption or loss of salt marsh habitat, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of salt marsh impacts. Due to the limited potential NBWRP's temporary and permanent impacts, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to impacts to marsh habitat for California black rail, California clapper rail, and western snowy plover would be rendered less than cumulatively considerable.

Burrowing Owl and Nesting Birds

The burrowing owl is a federal Species of Concern and California Species of Special Concern, and use grassland areas with ground squirrel burrow associations. NBWRP pipelines, including LGVSD and SVCSD pipelines, would have the potential to impact habitats used by burrowing owls. Facility construction would also have the potential to temporarily impact raptors and nesting birds protected under the California Fish and Game Code and the federal Migratory Bird Treaty Act. Implementation of **Mitigation Measures 3.5.8 and 3.5.9** established in **Section 3.5, Biological Resources**, which includes avoidance of the nesting season (February 1 through August 31), minimization of impact area, pre-construction survey, construction crew training, and construction monitoring, would reduce potential temporary impacts to a less than significant level.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of burrowing owl habitat and nesting bird habitat, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of habitat. Due to the limited potential NBWRP's temporary impacts, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to impacts to burrowing owl, raptors, and nesting birds protected under the California Fish and Game Code and the Migratory Bird Treaty Act would be rendered less than cumulatively considerable.

Sensitive Mammal Species

The NBWRP has the potential to impact habitat for sensitive bat species, primarily at bridge crossings of streams, and American badger habitat, which can occur along pipeline routes and facility locations. Implementation of **Mitigation Measures 3.5.11** established in **Section 3.5, Biological Resources**, which includes pre-construction survey and avoidance of roosts, would reduce potential impacts to sensitive bat species to a less than significant level. Similarly,

implementation of **Mitigation Measures 3.5.12** established in **Section 3.5, Biological Resources**, which includes pre-construction survey and passive relocation of badger dens that may occur along pipeline or facility locations, would reduce potential temporary impacts to a less than significant level.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of sensitive bat species or American badgers, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of habitat. Due to the limited potential NBWRP's temporary impacts, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to sensitive bat species and American badger would be rendered less than cumulatively considerable.

Sensitive Plant Species and Heritage Trees

The NBWRP has the potential to impact the following listed and special-status plants, which have been identified as having at least a low potential to occur in the NBWRP area: Sonoma sunshine, soft bird's beak, Contra Costa goldfields, two-fork clover, franciscan onion, Napa false indigo, Mt. Tamalpais manzanita, narrow-anthered California brodiaea, Point Reyes bird's beak, dwarf downingia, Napa western flax, delta tulle pea, legenera, Mason's lilaeopsis, Suisun marsh aster, saline clover, and oval-leaved viburnum. Additionally, construction of facilities may impact heritage trees as defined by County tree ordinances. Implementation of **Mitigation Measures 3.5.13 and 3.5.14** established in **Section 3.5, Biological Resources**, which includes pre-construction survey, avoidance, restoration, and compensatory mitigation as appropriate, would reduce potential impacts to rare plant species to a less than significant level.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of rare plant habitat and heritage trees, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of habitat. Due to the limited potential for NBWRP's temporary impacts, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to impacts to rare plants and heritage trees would be rendered less than cumulatively considerable.

Wetland Habitat

The NBWRP Phase 1 would have the potential to impact 71 drainages; of these 54 are unnamed tributaries, most of which are likely to be ephemeral drainages that are dry most of the year. It is estimated that implementation of Phase 1 would result in temporary impact to 0.52 acres of jurisdictional wetland, and 2.8 acres of CDFG jurisdictional features. Under the Fully Connected System, 213 drainages would have the potential to be affected.

Implementation of projects within the North San Pablo Bay Watershed would have the potential to impact wetland features. These projects have completed or will be required to complete the

appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of wetlands and sensitive habitats.

Due to the loss of wetland habitat, implementation of the NBWRP Phase 1 would contribute to the cumulative temporary disturbance of jurisdictional wetlands (0.5 acres) and associated riparian area (2.8 acres). As required by **Measure 3.5.1**, design measures would be incorporated to avoid wetland impacts the extent feasible, either through avoidance or through use of trenchless technology. As necessary, compensatory mitigation would be established as part of the USACE 404 Permit and CDFG 1600 permitting processes. Due to the limited wetland loss, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to wetland loss would be rendered less than cumulatively considerable.

CRLF and Western Pond Turtle

As noted above, implementation of the NBWRP Phase 1 would have the potential to affect 71 drainages, with potential impacts to California red-legged frog and western pond turtle upland and aquatic habitats. As noted above, **Measure 3.5.1** requires that design measures be incorporated to avoid wetland impacts the extent feasible, either through avoidance or through use of trenchless technology. Therefore, it is anticipated that temporary impacts to habitat for these species at stream crossings would be avoided. As necessary, compensatory mitigation would be established as part of the USACE 404 Permit and CDFG 1600 permitting processes. Due to the limited impacts to stream crossings, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of the NBWRP to temporary impacts to California red-legged frog and western pond turtle upland and aquatic habitats species, would be rendered less than cumulatively considerable.

Special Status Fish, Invertebrates and California Freshwater Shrimp

As noted above, implementation of the NBWRP Phase 1 would have the potential to affect 71 drainages, with potential impacts to special-status fish species and California Freshwater Shrimp. Construction of Proposed Project facilities could affect special-status invertebrate or fish species including central California coast steelhead, Chinook salmon, California freshwater shrimp, Pacific lamprey, and Sacramento splittail, or designated critical habitat for steelhead. Additionally, habitat areas for Riksecker's water scavenger beetle and California brackishwater snail could be affected. As noted above, **Measure 3.5.1** requires that design measures be incorporated to avoid wetland impacts the extent feasible, either through avoidance or through use of trenchless technology. Therefore, it is anticipated that temporary impacts to habitat for these species at stream crossings would be avoided. As necessary, compensatory mitigation would be established as part of the USACE 404 Permit and CDFG 1600 permitting processes. Due to the limited impacts to stream crossings, and the mitigation measures established in **Section 3.5, Biological Resources**, the contribution of NBWRP to temporary impacts to sensitive fish species, sensitive invertebrate species and California freshwater shrimp would be rendered less than cumulatively considerable.

Long-term operation impacts of NBWRP would include the reduction of treated effluent discharge into tributaries of North San Pablo Bay. When considered with other discharge inputs into North San Pablo Bay, both from point and non-point sources, this is anticipated to have an incremental, but beneficial, impact to water quality and sensitive species habitat. Therefore, the NBWRP's contribution to cumulative impacts to sensitive fish species, special status invertebrate species, and California freshwater shrimp habitat is less than significant.

Mitigation Measures

Mitigation Measures in **Section 3.5, Biological Resources**.

Impact Significance after Mitigation: Less than Significant.

Impact 4.6: Cumulative Long-term Impacts on Land Use. Concurrent construction of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term impacts to land use and agricultural resources. (Less than Significant)

The NBWRP has the potential to impact farmland designated as prime, statewide importance, and unique. Implementation of pipelines, pump stations, and storage facilities would have the potential for temporary, or in some cases, permanent loss of agricultural lands. As discussed in Section 3.6, Land Use and Agricultural Resources, it is anticipated that these impacts can be avoided through siting of facilities in previously disturbed areas, such as roadways.

Implementation of **Mitigation Measures 3.6.3** established in **Section 3.6, Land Use and Agricultural Resources**, which includes measures to avoid permanent impacts to farmlands associated with pipeline installation.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of farmlands, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of farmlands. Implementation of the NBWRP would provide recycled water as an irrigation supply to offset potable surface and groundwater supplies currently used for this purpose. Recycled water represents a reliable, local and drought-proof irrigation supply that supports the long-term viability of all agricultural practices within the region. Due to the limited potential for NBWRP's temporary impacts, and the mitigation measures established in **Section 3.6, Land Use and Agricultural Resources**, the contribution of the NBWRP to impacts regarding the loss of farmlands would be rendered less than cumulatively considerable.

Impact 4.7: Cumulative Impacts from Greenhouse Gas Emissions. Concurrent operation of the NBWRP with other projects could result in a cumulatively considerable net increase in GHG emissions or criteria pollutants for which the region is in non-attainment under applicable standards. (Less than Significant)

Greenhouse Gases. NBWRP would result in long-term emissions associated with distribution of recycled water. As noted in Section 3.8, Air Quality, the California Air Resources Board (CARB) has recommended that industrial projects that meet interim CARB performance standards for construction and transportation emissions, and emit no more than 7,000 metric tons of CO₂e per year from non-transportation related GHG sources, should be presumed to have a less than significant impact related to climate change, which is a global cumulative impact issue. Non-transportation sources include combustion related components/equipment, process losses, purchased electricity, and water usage and wastewater discharge (CARB, 2008f). As discussed in **Section 3.8, Air Quality**, Phase 1 GHG emissions are estimated at 531 tons CO₂e, and Fully Connected Alternative GHG emissions are estimated at 979 tons CO₂e. Emissions from implementation of the NBWRP would be well below CARB's interim GHG threshold of 7,000 metric tons of CO₂e per year.

Other projects within the State would also contribute to GHG emissions, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset GHG emissions. Implementation of the NBWRP would provide recycled water as an irrigation supply to offset potable surface and groundwater supplies currently used for this purpose. Due to the limited nature of NBWRP's GHG emissions, and the mitigation measures established in **Section 3.8, Air Quality**, the contribution of NBWRP to the significant cumulative impact associated with GHG emissions would not be considered cumulatively considerable.

Criteria Pollutants. As demonstrated in **Table 4-1**, there are a number of projects in the area that would overlap with implementation of NBWRP. However, according to the *BAAQMD CEQA Guidelines*, a project's cumulative impact on air quality is considered less than significant if it does not have an individually significant operational air quality impact and it is consistent with the local general plans as well as the regional air quality plan (BAAQMD, 1999). As demonstrated in **Section 3.8, Air Quality**, NBWRP would not result in significant increases in long-term emissions of criteria pollutants. As such, the proposed project would not conflict with an applicable local or regional air quality plan and would not be cumulatively considerable. Cumulative impacts related to criteria pollutants would be less than significant.

Impact 4.8: Cumulative Long-term Impacts on Cultural and Historic Resources. Concurrent operation of the NBWRP with other projects proposed in the Sonoma, Napa, and Marin County area and other water and wastewater infrastructure projects could result in cumulative long-term impacts to cultural resources. (Less than Significant)

NBWRP has the potential to for long-term impacts related to the loss of cultural resources and historical resources. Implementation of pipelines, pump stations, and storage facilities would have the potential to result in the permanent loss of cultural resources. As discussed in **Section 3.12, Cultural Resources**, it is anticipated that these impacts can be avoided through siting of facilities in previously disturbed areas, such as roadways. Implementation of **Mitigation Measures 3.12.1 and 3.12.2** established in **Section 3.12, Cultural Resources**, which includes measures to avoid permanent impacts to cultural resources associated with facility installation.

Other projects within the North San Pablo Watershed could also contribute to disruption or loss of historic sites or archaeological remains, if implemented. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or avoid impacts to cultural resources. Due to the limited potential for NBWRP's temporary impacts, and the mitigation measures established in **Section 3.12, Cultural Resources**, the contribution of NBWRP to impacts regarding the loss of cultural resources would be rendered less than cumulatively considerable.

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