

CHAPTER 1

Introduction and Project Background

1.1 Purpose and Need for the Proposed Action

The U.S. Department of Interior, Bureau of Reclamation (Reclamation) and North Bay Water Reuse Authority's Member Agencies have prepared this Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the North San Pablo Bay Restoration and Reuse Project. The North San Pablo Bay Restoration and Reuse Project has been developed in conformance with the requirements of the Reclamation's Public Law 102-575, Title XVI, including preparation of a Feasibility Study, and passage of Senate Bill 1475. For the purposes of this EIR/EIS, this project or action will be referred to as the **North Bay Water Recycling Program (NBWRP)**. As noted in Reclamation's NEPA Handbook (Reclamation, 2000), this section has been prepared in accordance with Title 40 Code of Federal Regulations (CFR) Section 1508.9 to present why the proposed action is being considered.

This EIR/EIS has been developed to provide the public and responsible and trustee agencies reviewing the NBWRP an analysis of the potential effects, both beneficial and adverse, on the local and regional environment associated with construction and operation of the NBWRP. The basic purpose of the NBWRP is to provide recycled water for agricultural, urban, and environmental uses and to promote the expanded beneficial use of recycled water system in the North Bay region. Implementation of the NBWRP would include upgrades to treatment processes and construction of pipelines, pump station, and storage facilities to distribute recycled water for use in compliance with Article 4 in Title 22 of the California Code of Regulations, which sets water quality standards and treatment reliability criteria for recycled water.

The North Bay Water Reuse Authority (NBWRA), established under a Memorandum of Understanding (MOU) in August 2005, is comprised of four wastewater utilities and one water agency: Las Gallinas Valley Sanitary District (LGVSD), Novato Sanitary District (Novato SD), Sonoma Valley County Sanitation District (SVCSD), Napa Sanitation District (Napa SD), and Sonoma County Water Agency (SCWA). Additional agencies supporting the NBWRA through contribution of funds and staff time include North Marin Water District (NMWD) and Napa County.

Under the MOU, the NBWRA is exploring "the feasibility of coordinating interagency efforts to expand the beneficial use of recycled water in the North Bay Region thereby promoting the conservation of limited surface water and groundwater resources." The NBWRP would alter the disposition of recycled water in the North Bay Region by providing increased recycled water supply to urban, agricultural and environmental uses.

1.1.1 Project Area Needs

The action area is unique because of the mix of sensitive environmental, urban, and high-value agricultural areas. Each of these is affected by existing water management challenges and needs, and will be exposed to increasing problems in the future. The problems and needs can be summarized as follows:

- The vitally important estuarine ecosystem of the North San Pablo Bay Area, which includes endangered species and vital wetlands, has been under intense pressure. Although protective and restorative measures are in place, the habitat requires a reliable flow of clean water;
- The agricultural economy, which is dominated by high-value vineyard culture, requires a highly reliable water supply to maintain and to expand its crop base;
- Growing urbanization of the greater San Francisco Bay Area imposes increasing demand on water supply and requires highly reliable sources of water;
- Surface water supplies are already diverted by multiple users, have low flows in the summer (which coincides with the irrigation season), and can have low flows in dry years; and
- Groundwater supplies in some localities are heavily pumped for agricultural and municipal uses and in some localities have marginal quality. In general, groundwater pumping is exceeding natural replenishment.

1.1.2 Purpose of Proposed Action

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. The Bureau of Reclamation's water reclamation and reuse program is authorized by the Reclamation Wastewater and Groundwater Study and Facilities Act of 1992 (Title XVI of Public Law 102-575). Also known as Title XVI, the act directs the Secretary of the Interior to undertake a program to investigate and identify opportunities for water reclamation and reuse of municipal, industrial, domestic and agricultural wastewater, and naturally impaired ground and surface waters, and for design and construction of demonstration and permanent facilities to reclaim and reuse wastewater.

The NBWRA is a cooperative program in the San Pablo Bay region that supports sustainability and environmental enhancement by expanding the use of recycled water. The purpose of the NBWRP is to provide recycled water for agricultural, urban, and environmental uses thereby reducing reliance on local and imported surface and groundwater and reducing the amount of treated effluent releases to San Pablo Bay.

1.2 Compliance with CEQA and NEPA

This document is a joint EIR/EIS and satisfies the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). CEQA documentation for some of the project components of the NBRWP has been completed, and this EIR/EIS

satisfies NEPA requirements for those projects (refer to Section 1.8 for the documentation prepared and incorporated by reference). The primary purpose of an EIR/EIS is to identify and publicly disclose environmental impacts that may result from implementation of a project and to identify feasible alternatives, mitigation measures, or revisions to the project that would reduce those impacts, to the degree feasible. While CEQA requires a determination of impact significance for each impact discussed in an EIR based on the significance criteria, NEPA does not require this for an EIS. Under NEPA preparation of an EIS is triggered if a federal action has the potential to “significantly affect the quality of the human environment,” which is based on the context and intensity for each potential impact. The significance thresholds used in this EIS/EIR also encompass the factors taken into account under NEPA to evaluate the context and the intensity of the effects of an action.

This EIR/EIS would be used by local, state, and federal agencies to identify, evaluate, and disclose significant environmental impacts of the proposed action and alternatives, as well as provide potential mitigation measures for impacts.

1.2.1 NEPA Lead Agency

As implementation of the NBWRP would likely require external funding assistance, the investigation and development of this program is being carried out in conformance with the requirements of the U.S. Department of the Interior’s Bureau of Reclamation Public Law 102-575, Title XVI, which provides a mechanism for federal participation and cost-sharing in water reuse projects. There is the potential that Congress would authorize and appropriate partial funding for the design and construction of the program under PL102-575, Title XVI. Based on this authorization and appropriation, Reclamation could provide up to 25 percent of project construction cost to a maximum federal cost share contribution of \$100 million.

In order for the NBWRA to secure implementation funding, HR¹ 236 was introduced in January of 2007 and S² 1472 was introduced in May of 2007; these bills authorized Reclamation’s participation in constructing the NBWRP under Title XVI. Both of these bills were combined in the Omnibus Public Lands Act of 2009, S 22. S22 did not pass the Senate, and was reintroduced as HR 146, which passed the Senate in January 2009, passed the House in February 2009, and was signed into law by the President as public law 111-11 section 9110 on March 30, 2009.

The provision of federal funding for implementation of the NBWRP to meet regional recycled water needs is a Federal Action. To support the Federal Action, this EIR/EIS has been prepared in compliance with NEPA and the Council on Environmental Quality (CEQ)’s NEPA implementing regulations (Title 40, Code of Federal Regulations [CFR], Section 1500 et seq.). The EIR/EIS has also been prepared consistent with Reclamation’s NEPA Handbook (Public Review Draft, 2000). Because of the complex nature of the NBWRP, Reclamation has determined that preparation of an EIS is the most appropriate form of NEPA compliance. Reclamation intends to use this EIR/EIS to consider provision of federal funding under Title XVI for implementation of the

¹ House of Representatives

² Senate Bill

NBWRP. As lead Federal agency, Reclamation would use this EIR/EIS to support a Record of Decision, which would document Reclamation's decision to choose one of the alternatives including the proposed action and no action. Other federal agencies, such as the U.S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife Service (USFWS) may rely on the EIS to satisfy NEPA for their individual approvals of project components.

1.2.2 CEQA Lead Agency

This Draft EIR/EIS has been prepared in compliance with CEQA of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the State *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3.

This document has been prepared as a project-level and program-level EIR/EIS, as provided for by *CEQA Guidelines* §15161 and 15168, respectively. The proposed facilities that are evaluated at the program level will require additional environmental documentation once site-specific project designs are determined. A Program EIR/EIS may be prepared on a series of actions "that can be characterized as one large project and are related either:

1. Geographically;
2. As a logical part in the chain of contemplated actions;
3. In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or;
4. As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways." (*CEQA Guidelines* §15168)"

SCWA is the Lead Agency under CEQA. Each of the NBWRA Member Agencies and Cooperating Agencies are Responsible Agencies under CEQA, and would rely on this EIR/EIS for project approvals within their service areas.

1.3 Alternatives Under Consideration

NEPA and the CEQ's NEPA implementing regulations (40 CFR, Section 1500 et seq.) require federal agencies, when proposing to carry out, approve, or fund a project, to evaluate the environmental effects of the action, including feasible alternatives and mitigation measures to minimize adverse effects.

Pursuant to Section 15126(d) of the *CEQA Guidelines*, an EIR/EIS must describe and evaluate a reasonable range of alternatives that would feasibly attain most of the basic project objectives, and would avoid or substantially lessen any of the significant impacts of the project as proposed. The *CEQA Guidelines* state that the range of alternatives required to be evaluated in an EIR/EIS is governed by the "rule of reason": the EIR needs to describe and evaluate only those alternatives necessary to permit a reasoned choice and to foster informed decision-making and public participation.

Three alternatives are analyzed in this EIR/EIS at a project or program level of detail and compared against the “No Project Alternative” and the “No Action Alternative”. Each of the action alternatives (discussed below) are intended to meet the purpose, objectives, and need identified by the NBWRA.

- **No Project Alternative**, assumes that the proposed project is not implemented, and reviews two scenarios: 1) consideration of existing conditions without the project, a “no build scenario”; and 2) consideration of “reasonably foreseeable” future conditions without the project. This second scenario is identical to the No Action Alternative, identified below.
- **No Action Alternative**, provides a “future without the project” scenario as a NEPA baseline to compare the impacts of the proposed Action Alternatives.
- **Alternative 1, Basic System**, which includes use of recycled water near each of the individual wastewater treatment plants (WWTPs);
- **Alternative 2, Partially Connected System**, which adds pipelines, pump stations and storage to partially connect the existing WWTPs; and
- **Alternative 3, Fully Connected System**, which provides a fully integrated and regional recycled water distribution system connecting all four Member Agency WWTPs.

1.4 Intended Use of the EIR/EIS

Reclamation intends to use this EIR/EIS to consider provision of federal funding under Title XVI for implementation of the NBWRP. As lead Federal agency, Reclamation would use this EIR/EIS to support a Record of Decision, which would document Reclamation’s decision to choose one of the alternatives, including the proposed action and no action.

The NBWRA Member Agencies and cooperating agencies may use this EIR/EIS to approve the NBWRP, or components of the NBWRP, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts. As the CEQA Lead Agency, SCWA’s Board of Directors will consider certification of the EIR/EIS as complete under CEQA (*CEQA* Guidelines §15090). Once the EIR/EIS has been certified as complete, the Board, or NBWRA Member Agencies, as Responsible Agencies, will consider the certified EIR/EIS (15096(a)). Any project approvals (see **Table 1-1**; also see Section 1.6.6 below) would require the Board or NBWRA Member Agencies to make written findings with respect to each significant environmental effect relevant to their aspect of the project identified in the EIR/EIS in accordance with Section 15091 of *CEQA Guidelines*.

The analyses contained within this EIR/EIS would be used to support the acquisition of the following regulatory permits or approvals if needed:

- Clean Water Act Section 404– Individual or Nationwide Permits (USACE);
- Endangered Species Act – Section 7 Consultation (USFWS);

**TABLE 1-1
PROPOSED COMPONENTS ANTICIPATED FOR PROJECT APPROVALS**

		New Pipeline (miles)	New Demand (AFY)	Capacity Increase (mgd)	New Pumps (HP)	New Storage (AF)
LGVSD	Peacock Gap	--	--	--	--	--
	NMWD URWP (South)	5.9	204	0.7	72	⁽³⁾
	Sears Point	--	--	--	--	--
Novato SD	NMWD URWP (North/Central)	9.8	542	1.2	259	⁽³⁾
	Sears Point	--	--	--	--	--
SVCS	Southern Sonoma Valley	--	--	--	--	--
	Central Sonoma Valley	--	--	--	--	--
	Sonoma Valley (1A) ¹	5.2	874	0	662	65
	Napa Salt Marsh	7.9	⁽²⁾	0	0	0
Napa SD	Carneros East	--	--	--	--	--
	MST Area	17.5	2,137	4.5	880	0
	Napa (local)	--	--	--	--	--
	Napa Salt Marsh	--	--	--	--	--
Total		46.3	3,757	6.4	1,873	65

¹ Sonoma Valley (1A) is a pipeline alignment originally analyzed as a part of the Sonoma Valley Recycled Water Project EIR and proposed under Phase 1 for the NBWRP. The alignment is described on page 2-18 of this document.

² Additional 3,460 AFY release of recycled water to Napa Salt Ponds 7 and 7A, depending upon year type. Because this is a beneficial use that is not related to recycled water supply, this number is tracked separately in each of the alternatives.

³ Existing 0.5-MG reservoir would be rehabilitated to provide recycled water system storage.

SOURCE: CDM, 2009, Napa SD, 2009.

- 1600 Streambed Alteration Agreement – (California Department of Fish and Game);
- Section 401 Water Quality Certification (San Francisco Bay Regional Water Quality Control Board);
- Roadway Encroachment Permit (California Department of Transportation);
- Roadway Encroachment Permits as applicable (Counties of Marin, Sonoma, and Napa, Cities of San Rafael, Novato, Sonoma, and Napa).

The majority of the proposed activities would lie within public rights-of-way. Acquisition of right-of-ways and temporary construction easements may be necessary for construction of some of the proposed facilities. Temporary construction easements would also be required for contractor staging areas and equipment and materials storage.

1.5 Organization of the Draft EIR/EIS

This Draft EIR/EIS has been organized into the following chapters:

ES. Executive Summary. This chapter summarizes the contents of the Draft EIR/EIS.

1. Introduction and Project Background. This chapter discusses the CEQA/NEPA process, the purpose of the EIR/EIS, and background information for the NBWRP.

2. **Project Description.** This chapter provides an overview of the NBWRP, describes the need for and objectives of the NBWRP, and provides detail on the characteristics of the NBWRP.
3. **Affected Environment, Environmental Consequences, and Mitigation Measures.** This chapter describes the environmental setting and identifies potential environmental impacts resulting from the Proposed Action. Measures to mitigate the impacts of the Proposed Action are presented for each resource area.
4. **Cumulative Impacts.** This chapter describes the potential impacts of the Proposed Action when considered together with other related projects in the action area.
5. **Growth Inducement and Secondary Effects of Growth.** This chapter describes the potential for the Proposed Action to induce growth and discusses any indirect impacts.
6. **Alternatives Analysis.** This chapter presents an overview of the alternatives development process and describes the alternatives to the Proposed Action that were considered.
7. **Climate Change.** This chapter presents a discussion of climate change and its potential consequences and how it would affect or be affected by the proposed project.
8. **Consultation Section.** This chapter summarizes public and agency involvement activities which satisfy CEQA and NEPA requirements for public scoping and agency consultation and coordination.
9. **Irreversible Commitment of Resources.** This chapter contains a discussion of the irreversible and irretrievable commitments of resources which may occur should the project be implemented.
10. **Relationship of Uses and Productivity.** This chapter describes how the Proposed Action would affect the short-term use and the long-term productivity of the environment.
11. **Mitigation Monitoring and Reporting Program.** This chapter identifies the significant and potentially significant impacts of the Proposed Action, recommended measures adopted by NBWRA to reduce these impacts to a less-than-significant level, and reporting tasks for implementation of measures.
12. **Report Preparers.** This chapter identifies authors and consultants involved in preparing this Draft EIR/EIS, including persons and organizations consulted.

1.6 CEQA/NEPA Process and Review

1.6.1 Notice of Intent

In accordance with 40 CFR 1508.22, a Notice of Intent (NOI) was published in the Federal Register by Reclamation on July 28, 2008. During the 30-day public review period, NBWRA held three local scoping meetings, which are described in Section 1.6.3 below. No written comments were received by Reclamation during the NOI public review period, which closed on August 28, 2008.

1.6.2 Notice of Preparation

In accordance with Sections 15082 of *CEQA Guidelines*, the NBWRA circulated a Notice of Preparation (NOP; State Clearinghouse #2008072096) to local, state, and federal agencies, and to other interested parties on July 25, 2008. The NOP was mailed to the State Clearinghouse and was available online on the NBWRA website. The NOP was directly mailed to 63 parties, and a postcard notification of the NOP's availability was sent to 580 parties. The NOP was circulated for a 30-day public review period, which ended on August 25, 2008.

1.6.3 Public Scoping

NBWRA held three public scoping meetings on August 4, 5, and 6 of 2008 at the locations identified below.

August 4, 2008
6:30 p.m. – 7:30 p.m.
Napa Elks Lodge
2804 Soscol Avenue, Napa

August 5, 2008
6:30 p.m. – 7:30 p.m.
Margaret Todd Senior Center
1560 Hill Road, Novato

August 6, 2008
6:30 p.m. – 7:30 p.m.
Sonoma Community Center
276 East Napa Street, Sonoma

Public notices were placed in local newspapers informing the general public of the availability of the NOP and NOI and the time and place of scheduled scoping meetings. The purpose of the scoping meetings were to present the Proposed Action to the public through use of display maps, route alignments and handouts describing project components and potential environmental impacts. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the Proposed Action.

Additional scoping meetings with individual stakeholders were held on August 6th, 2008 with the Russian River and Eel River Interest Groups, and on July 27th, 2008 with California Department of Parks and Recreation (staff meeting).

Written comments received during the Scoping Meeting and circulation of the NOP and NOI are included in **Appendix 1**. Written comments were received from state agencies, including California Department of Fish and Game (CDFG), California Department of Parks and Recreation, California Department of Transportation, California Native American Heritage Commission, State Water Resources Control Board (SWRCB); public organizations, including Groundwater Under Local Protection (GULP), Friends of the Eel River, Marin Audubon Society, Salmon Protection and Watershed Network, Sonoma County Water Coalition; and members of the public. The comments included questions regarding potential effects on surface and groundwater quality, biological resources, cultural resources, recreational resources, and traffic.

1.6.4 Draft EIR/EIS

This document constitutes the Draft EIR/EIS. The report contains a description of the NBWRP (or proposed action), description of the environmental setting, identification of impacts, and mitigation measures for impacts found to be significant, as well as an analysis of alternatives. The impacts are categorized as follows:

1. Significant and unavoidable;
2. Potentially significant, but can be mitigated to a less-than-significant level;
3. Less than significant (mitigation is not required under CEQA, but may be recommended);
4. No impact; or
5. Beneficial.

NEPA requires that the impacts of each alternative be quantified and analyzed separately, with the analysis of the no action alternative presented first, followed by the alternatives. This impact analysis should include at least the following items:

- The direct effects and their significance;
- The indirect effects and their significance;
- Quantification of the impact (when possible);
- Mitigation for the impact; and
- The resultant net, or residual, impact.

The impact analysis should focus on potentially significant effects and should not include discussion of impacts that are minor and short term. Effects include those involving ecological (natural resources, and the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health resources, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if the federal lead agency believes that the effect will be beneficial.

CEQA requires that a lead agency shall neither approve nor carry out a project as proposed unless the significant environmental effects have been reduced to an acceptable level, where possible (*CEQA Guidelines* §15091 and §15092). An acceptable level is defined as eliminating, avoiding, or substantially lessening the significant effects. If such a reduction is not possible, a lead agency must adopt mitigation findings for potentially significant impacts that can be reduced to a less than significant level. For those impacts that remain significant and unavoidable, a lead agency must adopt findings regarding alternatives and a Statement of Overriding Considerations. As defined in *CEQA Guidelines* §15093, a Statement of Overriding Considerations balances the benefits of a project against its unavoidable environmental consequences.

1.6.5 Public Review

This document is being circulated to local, state and federal agencies, and to interested organizations and individuals who may wish to review and comment on the Draft EIR/EIS. Publication of this Draft EIR/EIS marks the beginning of a 45-day public review period, during which written comments may be directed to the address below. During the 45-day review period, the NBWRA will hold public meetings on the Draft EIR/EIS.

Sonoma County Water Agency
Attn: Marc Bautista
Environmental Specialist
P.O. Box 11628
Santa Rosa, CA 95406-1628

1.6.6 Final EIR/EIS

Written and oral comments received in response to the Draft EIR/EIS will be addressed in a Response to Comments document which, together with the Draft EIR/EIS, will constitute the Final EIR/EIS. Reclamation will then consider provision of federal funding under Title XVI for implementation of the NBWRP and use the document to support a Record of Decision to document Reclamation's decision on the project. As the CEQA Lead Agency, SCWA's Board of Directors will consider certification of the EIR/EIS as complete under CEQA (*CEQA Guidelines* §15090). Once the EIR/EIS has been certified as complete, the Board, or NBWRA Member Agencies, as Responsible Agencies, will consider the certified EIR/EIS (15096(a)). Any project approvals would require the Board or NBWRA Member Agencies to make written findings with respect to each significant environmental effect relevant to their aspect of the project identified in the EIR/EIS in accordance with Section 15091 of *CEQA Guidelines*.

1.6.7 Mitigation and Monitoring and Reporting Program

In January 1989, California enacted AB³ 3180 (Cortese Bill), which requires lead agencies to “adopt a reporting and mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment” (CEQA §21081.6, *CEQA Guidelines* §15097). The specific “reporting or monitoring” program required by AB 3180 is not required by *CEQA Guidelines* to be included in the EIR/EIS. However, a Mitigation Monitoring and Reporting Program (MMRP) will be included with the EIR/EIS for public review.

1.6.8 Responsible and Trustee Agencies

Other potential responsible and trustee agencies beyond the NBWRA Member Agencies and cooperating agencies with authority over the Proposed Action include, but are not limited to, the following: USACE, USFWS, National Oceanic and Atmospheric Administration (NOAA) Fisheries, CDFG, SWRCB, San Francisco Bay Regional Water Quality Control Board (RWQCB), State Lands Commission, California State Office of Historic Preservation, California Department of Health Services, Bay Area Air Quality Management District, and Sonoma County Public Works.

1.7 Project Background

As discussed above, NBWRA was established under a Memorandum of Understanding (MOU) in August 2005 and is comprised of four wastewater utilities discussed below with SCWA acting as the CEQA Lead Agency and Reclamation acting as the NEPA Lead Agency. Additional agencies supporting the NBWRA through contribution of funds and staff time include NMWD and Napa County.

³ Assembly Bill

1.7.1 MOU Signatory Agencies

The following Member Agencies form the NBWRA and would participate in the implementation of the NBWRP:

- **LGVSD** – LGVSD provides wastewater treatment and disposal service to approximately 30,000 people within the area of Marinwood, Lucas Valley, Terra Linda, Santa Venetia, Los Ranchitos, and Smith Ranch Road (LGVSD, 2005).
- **Novato SD** – Novato SD provides wastewater treatment and disposal services to approximately 60,000 residents within the city of Novato, an area of 28 square miles, and surrounding areas (Novato SD, 2006).
- **SVCS** – The SVCS WWTP began operations in 1954 and provides service to about 34,000 people in the city of Sonoma, within a 7-square-mile area (SVCS, 2006).
- **Napa SD** – The Napa SD’s Soscol Water Recycling Facility (SCRF) treats wastewater from the city of Napa and surrounding unincorporated communities, an area of about 23 square miles, and serves a population of approximately 80,000 (Napa SD, 2007).
- **SCWA** – SCWA, which began the Title XVI process for investigating a recycled water distribution system under a Cooperative Agreement with the Bureau of Reclamation, is a drinking water provider to over 600,000 residents and continues to be an actively participating partner.

1.7.2 Supporting Agencies

- **NMWD** – NMWD has partnered with Novato SD to implement recycled water projects in their collective service areas, including a 0.5 million gallons per day-tertiary treatment facility located at the Novato SD reclamation facility. NMWD is contributing funds and staff time to NBWRA.
- **Napa County** – Napa County is cooperating with Napa SD in the development of recycled water options for the Milliken-Sarco-Tulucay (MST) Creeks areas, and is contributing funds and staff time to NBWRA.

1.7.3 Feasibility Study Preparation

The NBWRA members undertook cooperative planning efforts over a 5-year period, including 19 bi-monthly technical workshops as well as monthly institutional workshops with extensive outreach to potential NBWRP stakeholders to define shared objectives and develop feasible alternatives toward definition of region-wide water reclamation and reuse project that would enable them to meet those objectives. Under the MOU, Camp Dresser McKee, Inc. (CDM) prepared a Phase 1 Engineering Feasibility Report (2005), a Phase 2 Engineering Feasibility Study Report (2006), and a Phase 3 Engineering and Economic/Financial Analysis Report (2008) in coordination with NBWRA. The Phase 1 Engineering Foundation Report, completed in March 2005, represented the submittal of preliminary information on demands in the action area, possible project configuration, and preliminary cost estimates. This initial report analyzed 15 alternatives.

The Phase 2 Feasibility Report, completed in June 2006, presented an engineering evaluation of a regional approach to recycled water use in the North San Pablo Bay area of California. The report described the action area, the key water management problems and needs within the action area, identified water reuse opportunities, and developed and analyzed alternatives that could address the identified water management needs, and presented an overview of associated legal and institutional requirements.

The Phase 3 Engineering and Economic/Financial Analysis Report (or Phase 3 Report) completed in June 2008 updated the Phase 2 Feasibility Report to be consistent with project planning conducted by the individual Member Agencies, included an economic and financial analysis, and discussed potential environmental effects. The Phase 3 Report provided the engineering and economic studies to guide the NBWRA and Reclamation's selection of a recommended Action Alternative for funding and implementation, and generated the four alternatives under consideration, as discussed in Section 1.3.

1.7.4 Water Supply Setting and Future Conditions

The action area encompasses approximately 318 square miles of land within Marin, Sonoma, and Napa Counties. This region extends roughly 10 to 15 miles inland of the tidal San Pablo Bay, with a total population of over 270,000 in the major urban centers of San Rafael, Novato, Sonoma, and Napa. The region supports agriculture, including some of the premier wine-grape growing land in North America, as well as light industry, commercial and institutional uses, parklands, and residential areas.

The waterways of this region – the Napa River, Sonoma Creek, Novato Creek, and Petaluma River, as well as smaller streams, some of which support only seasonal flows – are tributary to the San Pablo Bay estuary. Although threatened until recently by development, the remaining tidal wetlands of the San Pablo Bay estuary serve in a vital ecological role as nurseries for fisheries and wintering areas for migratory waterbirds.

Local and regional planning projections indicate that approximately 10 to 12 percent of growth would occur in most of the existing urban centers in the action area by the year 2020 (as compared to 2005 populations). Existing policies in principal cities will tend to favor concentrated rather than dispersed growth.

Agricultural land use is expected to remain relatively constant over a 20-year planning period. The local governing policies in the Marin, Sonoma, and Napa Counties in the action area protect agricultural lands. Given the high value of wine-grape culture, it is unlikely that there would be much change in the 75 percent of agricultural acreage committed to vineyards.

Total urban water use – including both residential and non-residential uses – in the action area is projected to increase from the 2005 level of 63,700 acre-feet per year (AFY) to about 72,800 AFY in 2020. Total water use for irrigation of agricultural lands is estimated at approximately 23,300 AFY at present. The sources that serve these water demands include surface water supplies (both within and outside of the action area), groundwater, and recycled water. SCWA supplies

much of the Sonoma and Marin County area with *surface water* conveyed from the Russian River and its tributaries in central Sonoma County, adjacent to the project area watershed. SCWA's reliable supplies to customers in the action area consist of 87,970 AF of water during a dry year.

Groundwater serves agricultural users (and some residential users) as a primary source of supply, particularly in the MST area of Napa County. Groundwater also serves as a secondary source of supply for some urban users as well, including the City of Sonoma, Valley of the Moon Water District, and SCWA contractors. Although the total quantity of groundwater in the action area is unknown, groundwater pumping has been measured. The vast increase (i.e., 80 percent) in pumping of groundwater in the past 30 years to support agricultural irrigation has resulted locally in groundwater outflow exceeding inflow, some impacts on groundwater quality, and a lowering of groundwater levels in some parts of the action area that are dependent on groundwater supplies.

Existing treatment and distribution infrastructure in the action area currently allows for about 7,300 AFY of *recycled water* for irrigation and wetlands restoration purposes, which could increase to 11,250 AFY by 2020.

At first glance, average year and wet season conditions appear to yield sufficient surface water and groundwater to meet total annual demand in the action area. However, the seasonal availability of some water sources (against the strong seasonality of agricultural demand), the potential for overdraft of groundwater with impacts on quality and quantity, and the growth pressures on the area's urban centers suggest a need for an effective, coordinated, and regional approach to the increased use of recycled water.

1.7.5 Recycled Water Availability

The WWTPs in the action area deliver recycled water during the dry season, when the RWQCB imposes restrictions on discharge of secondary effluent to waterways. SVCSD and Napa SD have the most extensive infrastructure in place for conveyance, storage, and distribution of recycled water to local users. Novato SD and LGVSD are currently producing secondary treated wastewater for discharge. All of the WWTPs, except LGVSD, currently have the capability to produce disinfected tertiary recycled water conforming to Title 22 requirements for unrestricted use. The Member Agencies have proposed projects that are in various stages of planning and implementation to increase treatment capacity or plan to increase the local use of recycled water, if funding is available. **Table 1-2** summarizes WWTP discharge and beneficial reuse in 2020 assuming implementation of those individual local projects.

As shown in Table 1-2, the potential for use of recycled water in the action area is not limited by demand but rather by the limited capacity for tertiary treatment and by the lack of regional conveyance and storage networks that would deliver disinfected tertiary treated recycled water where and as needed. Acting individually and locally, the NBWRA Member Agencies have limited ability to maximize their potential for water reclamation and reuse. Adopting a regional outlook and plan would provide an opportunity to expand the potential for beneficial water reuse.

**TABLE 1-2
POTENTIAL YEAR 2020 WWTP DISCHARGE AND
BENEFICIAL REUSE VOLUMES IN ACTION AREA**

Wastewater Treatment Plant	Flow (AFY)	Beneficial Reuse (AFY)
LGVSD	3,670	1,104
Novato SD	8,677	812
SVCSO	5,508	3,893
Napa SD	9,800	5,590
TOTAL	27,655	11,599

SOURCE: CDM, 2009

1.7.6 Environmental Benefits of Water Recycling

In 2001, the U.S. Environmental Protection Agency (USEPA) Water Division, Region IX issued EPA document number 909-F-98-001, which examined water recycling and reuse in an educational context. The document defined water recycling, described some examples of existing recycled water projects, discussed how recycled water affects the public, and identified three major environmental benefits associated with water recycling (discussed below).

The USEPA defines water recycling as reusing treated wastewater for beneficial purposes such as agricultural and landscape irrigation, industrial processing, toilet flushing, and groundwater recharge. The USEPA recognizes “water recycling”, “water reclamation”, and “water reuse” as synonymous terms. A common source of recycled water is water that is reclaimed from municipal wastewater. The USEPA identifies water recycling as a sustainable approach to water supply problems because, with adequate treatment, it does not compromise human health, it can be cost-effective in the long-term, and provides environmental benefits that support aquatic and terrestrial ecosystems.

According to the USEPA, recycled water can safely satisfy most water demands when it is treated to tertiary or advanced treatment levels. Where there is a likelihood of human exposure to the water, advanced treatment is required. There are two treatment levels in the water recycling process: secondary treatment and tertiary or advanced treatment. Secondary treatment consists of biochemical oxidation and disinfection following primary treatment. Water that undergoes secondary treatment is typically suitable for golf course irrigation, surface irrigation of orchards, nonfood crop irrigation, wetlands, wildlife habitat, stream augmentation, and industrial cooling processes. Tertiary treatment involves the use of physical, chemical or biological means to improve secondary effluent quality and may include chemical coagulation, filtration, membrane treatment and higher level disinfection. Wastewater that is treated to a tertiary level is suitable for landscape irrigation, toilet flushing, and food crop irrigation. Tertiary-treated water can also be used for indirect potable reuse to recharge potable groundwater aquifers or augment surface water reservoirs.

Due to the many opportunities for water reuse, the USEPA encourages the development of recycled water systems. The USEPA defines three major benefits of water recycling.

1. **Water recycling can decrease diversion of freshwater from sensitive ecosystems.** Supplementing industrial, agricultural, and urban water demands by using recycled water allows surface water, which is normally diverted, to remain instream and provide flow that supports plants, wildlife, and fish.
2. **Water recycling decreases discharge to sensitive water bodies.** In some cases, reducing wastewater discharges to water bodies can benefit the water bodies. For example, reducing wastewater discharge to a saltwater habitat could avoid brackish water conditions in the marsh. In addition, application of recycled water for agricultural use and landscape irrigation can provide a source of nutrients and lessen the need to apply synthetic fertilizers.
3. **Recycled water may be used to create or enhance wetlands and stream habitats.** Wetlands and streams provide environmental benefits including flood control, fisheries breeding, and water quality control. Aquatic environments and wildlife habitats can be improved by augmenting the water flow with recycled water.

1.7.7 Recycled Water Quality

Regulations stipulate water quality standards in conjunction with requirements for treatment, sampling, and monitoring. With recycled water, a key concern is the potential risk of human exposure to pathogenic organisms. The California Department of Public Health (CDPH) is responsible for regulating the use of recycled water in California. The California RWQCBs issue requirements for individual projects in conformance with the CDPH regulations. Article 4 in Title 22 of the California Code of Regulations sets water quality standards and treatment reliability criteria for recycled water, including Title 22 regulatory requirements for use of recycled water to protect the beneficial uses of recycled water for land applications, such as irrigation of fields, golf courses, or public access lands. **Table 1-3** lists the regulatory requirements for the recycled water quality permitted for different uses.

Title 22 sets bacteriological water quality standards based on the expected degree of public contact with recycled water. Disinfected tertiary treatment of recycled water is required for use involving direct public contact. Disinfected tertiary recycled water is defined as a filtered and subsequently disinfected wastewater.

Disinfected secondary treatment of recycled water is required for recycled water applications with a lower potential for public contact. There are three levels of secondary treatment based on the level of disinfection: disinfected secondary-2.2; disinfected secondary-23; and undisinfected secondary. Disinfected secondary-2.2 recycled water is defined as recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (mpn) of 2.2 per 100 milliliters of sample. Disinfected secondary-23 recycled water has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed an mpn of 23 per 100 milliliters of sample. Undisinfected secondary recycled water is oxidized

**TABLE 1-3
REGULATORY REQUIREMENTS FOR RECYCLED WATER USES IN CALIFORNIA^a**

Use of Recycled Water	Disinfected Tertiary Recycled Water	Treatment Level		
		Disinfected Secondary-2.2 Recycled Water	Disinfected Secondary-23 Recycled Water	Undisinfected Secondary Recycled Water
Irrigation				
Food crops where recycled water contacts the edible portion of the crop, including all root crops	Allowed	Not allowed	Not allowed	Not allowed
Parks and playgrounds	Allowed	Not allowed	Not allowed	Not allowed
School yards	Allowed	Not allowed	Not allowed	Not allowed
Residential landscaping	Allowed	Not allowed	Not allowed	Not allowed
Unrestricted-access golf courses	Allowed	Not allowed	Not allowed	Not allowed
Any other irrigation uses not prohibited by other provisions of the California Code of Regulations	Allowed	Not allowed	Not allowed	Not allowed
Food crops, surface-irrigated, above-ground edible portion, and not contacted by recycled water	Allowed	Allowed	Not allowed	Not allowed
Cemeteries	Allowed	Allowed	Allowed	Not allowed
Freeway landscaping	Allowed	Allowed	Allowed	Not allowed
Restricted-access golf courses	Allowed	Allowed	Allowed	Not allowed
Ornamental nursery stock and sod farms with unrestricted public access	Allowed	Allowed	Allowed	Not allowed
Pasture for milk animals for human consumption	Allowed	Allowed	Allowed	Not allowed
Nonedible vegetation with access control to prevent use as a park, playground or school yard	Allowed	Allowed	Allowed	Not allowed
Orchards with no contact between edible portion and recycled water	Allowed	Allowed	Allowed	Allowed
Vineyards with no contact between edible portion and recycled water	Allowed	Allowed	Allowed	Allowed
Non food-bearing trees, including Christmas trees not irrigated less than 14 days before harvest	Allowed	Allowed	Allowed	Allowed
Fodder and fiber crops and pasture for animals not producing milk for human consumption	Allowed	Allowed	Allowed	Allowed
Seed crops not eaten by humans	Allowed	Allowed	Allowed	Allowed
Food crops undergoing commercial pathogen-destroying processing before consumption by humans	Allowed	Allowed	Allowed	Allowed
Supply for Impoundment				
Nonrestricted recreational impoundments, with supplemental monitoring for pathogenic organisms	Allowed ^b	Not allowed	Not allowed	Not allowed
Restricted recreational impoundments and publicly accessible fish hatcheries	Allowed	Allowed	Not allowed	Not allowed
Landscape impoundments without decorative fountains	Allowed	Allowed	Allowed	Not allowed
Supply for Cooling or Air Conditioning				
Industrial or commercial cooling or air conditioning involving cooling tower, evaporative condenser, or spraying that creates a mist	Allowed ^c	Not allowed	Not allowed	Not allowed

TABLE 1-3 (Continued)
REGULATORY REQUIREMENTS FOR RECYCLED WATER USES IN CALIFORNIA^a

Use of Recycled Water	Disinfected Tertiary Recycled Water	Treatment Level		
		Disinfected Secondary-2.2 Recycled Water	Disinfected Secondary-23 Recycled Water	Undisinfected Secondary Recycled Water
Supply for Cooling or Air Conditioning (cont.)				
Industrial or commercial cooling or air conditioning not involving cooling tower, evaporative condenser, or spraying that creates a mist	Allowed	Allowed	Allowed	Not allowed
Other Uses				
Groundwater Recharge	Allowed under special case-by-case permits by RWQCBs ^d			
Flushing toilets and urinals	Allowed	Not allowed	Not allowed	Not allowed
Priming drain traps	Allowed	Not allowed	Not allowed	Not allowed
Industrial process water that may contact workers	Allowed	Not allowed	Not allowed	Not allowed
Structural fire fighting	Allowed	Not allowed	Not allowed	Not allowed
Decorative fountains	Allowed	Not allowed	Not allowed	Not allowed
Commercial laundries	Allowed	Not allowed	Not allowed	Not allowed
Consolidation of backfill material around potable water pipelines	Allowed	Not allowed	Not allowed	Not allowed
Artificial snow making for commercial outdoor uses	Allowed	Not allowed	Not allowed	Not allowed
Commercial car washes, not heating the water, excluding the general public from washing process	Allowed	Not allowed	Not allowed	Not allowed
Industrial process water that will not come into contact with workers	Allowed	Allowed	Allowed	Not allowed
Industrial boiler feed	Allowed	Allowed	Allowed	Not allowed
Nonstructural fire fighting	Allowed	Allowed	Allowed	Not allowed
Backfill consolidation around nonpotable piping	Allowed	Allowed	Allowed	Not allowed
Soil compaction	Allowed	Allowed	Allowed	Not allowed
Mixing concrete	Allowed	Allowed	Allowed	Not allowed
Dust control on roads and streets	Allowed	Allowed	Allowed	Not allowed
Cleaning roads, sidewalks and outdoor work areas	Allowed	Allowed	Allowed	Not allowed
Flushing sanitary sewers	Allowed	Allowed	Allowed	Allowed

^a Refer to the full text of the most current (December 2, 2000) version of Title 22: California Code of Regulations, Chapter 3 Water Recycling Criteria. This chart is only an informal summary of the uses allowed in this version. The version of the adopted criteria can be downloaded from: http://www.dhs.ca.gov/ps/ddwem/publications/Regulations/recycleregs_index.htm.

^b Allowed with "conventional tertiary treatment." Additional monitoring for two years or more is necessary with direct filtration.

^c Drift eliminators and/or biocides are required if public or employees can be exposed to mist.

^d Refer to Groundwater Recharge Guidelines, available from the CDPH.

SOURCE: ESA, 2006.

wastewater. Oxidized wastewater is wastewater in which the organic matter has been stabilized, is nonputrescible⁴ and contains dissolved oxygen.

1.7.8 Water Conservation Programs Within the Action Area

Within Sonoma County and portions of Marin County, SCWA, its water contractors, including NMWD and the City of Sonoma, and other water customers work together to help the community use water wisely. Similarly, the City of Napa, which provides water supply within the Napa SD service area, and Napa County have education and water conservation device programs in place to encourage water conservation within Napa County. SCWA provides financial incentives, staffing and technical expertise to assist the water contractors and other water customers with cost-effective water conservation programs. SCWA leads its regional water conservation program with a legislative and research component. SCWA sponsors, supports, and tracks water conservation legislation while serving in a leadership role for many federal, state and local councils and boards. SCWA was made promotional partner of the USEPA's WaterSense program in summer of 2007.

SCWA's leadership role has achieved results in emerging regional conservation measures. In 1998, SCWA became a signatory to the MOU Regarding Urban Water Conservation in California as governed by the California Urban Water Conservation Council (CUWCC). SCWA's retail water contractors are also signatories to the MOU, and are responsible for compliance with developing and implementing cost-effective Best Management Practices (BMPs). SCWA was the first wholesaler in the State of California to have all of its retail water agencies sign the CUWCC MOU. Beyond the BMPs, SCWA tracks and supports other emerging measures like water efficiency standards for new development, requirements to implement best available technology, and financial rebates for retrofit of irrigation meters. A third area of emerging regional measures has resulted in grant funding from Proposition 50, Proposition 13, and the California Public Utilities Council for water conservation programs.

Since 1982, SCWA has offered technical, financial, and program management assistance to its water contractors and other customers with water conservation measures that are cost-effective and would reduce water demands on SCWA's Russian River Project and water transmission system. Water contractors and other customers in turn educate their water customers in the wise use of indoor and outdoor water. Please see **Table 1-4** for a comprehensive list of the current water conservation measures being implemented by SCWA and the water contractors. Estimated savings that have resulted from current water conservation programs is over 6,600 AFY.

SCWA and the water contractors are proposing to implement new water conservation measures along with existing water conservation programs as part of the SCWA Water Project EIR, which is currently undergoing environmental review (SCWA, 2008). The goal of the conservation programs is to achieve total savings of 16,040 AFY by the year 2030, through the continued

⁴ Solid wastes which are not capable of being decomposed by micro-organisms with sufficient rapidity as to cause odors, gases, attraction of vectors or other offensive conditions. For example, wastes that are putrescible, and do not qualify as nonputrescible, would include food wastes.

**TABLE 1-4
COMPREHENSIVE LIST OF BEST MANAGEMENT PRACTICES BEING IMPLEMENTED BY
SCWA AND WATER CONTRACTORS**

Measure	Description
Residential Water Surveys- Indoor	This is the indoor component of indoor and outdoor water surveys for existing single-family and multi-family customers. Normally those with high water use are targeted and provided customized report to homeowner.
Residential Water Surveys- Outdoor	This is the outdoor component of indoor and outdoor surveys for existing single-family and multi-family customers. Normally those with high water use are targeted and provided customized report to homeowner.
Residential Retrofit	Provide owners of pre-1992 homes with retrofit kits that contain easy-to-install low flow showerheads, faucet aerators, and toilet tank retrofit devices until saturation reaches 75%.
Water Budgets	90%-100% of all irrigators of landscapes with separate irrigation accounts would receive a monthly or bi-monthly irrigation water use budget.
Large Landscape Conservation Audits	All public and private irrigators of landscapes larger than one acre would be eligible for free landscape water audits upon request.
Public Information Program	Public education would be used to raise awareness of other conservation measures available to customers. Programs could include poster contests, speakers to community groups, radio and television time, and printed educational material such as bill inserts, etc.
Commercial Water Audits	High water use accounts would be offered a free water audit that would evaluate ways for the business to save water and money.
Single Family Residential ULF Toilet Rebate	Homeowners would be eligible to receive a rebate to replace an existing high volume toilet with a new water efficient toilet.
Multi Family Residential ULF Toilet Rebate	Homeowners would be eligible to receive a rebate to replace an existing high volume toilet with a new water efficient toilet.
System Water Audits, Leak Detection and Repair	Water provider will undertake annual system water audits and repair leaks proactively. The budget will be \$50,000 per year for 10 years with the net results that un-accounted for water will be reduced to below 10%

SOURCE: SCWA, 2008

implementation of existing and new water conservation programs and measures. Brown and Caldwell screened 75 new water conservation measures and determined that 32 water conservation measures would generally be cost-effective and well-suited to implement in SCWA's service area and could realistically achieve additional approximate total savings of 9,440 AFY. Therefore, these measures were selected for implementation under the Water Conservation Component. Demand projections for the Water Project assume that the water conservation measures described would be implemented through the year 2030.

In June 2006, SCWA and other water contractors signed the Restructured Agreement for Water Supply which establishes water supply for each of the water contractors, encourages water conservation and recycled water use that offsets potable water use, and provides payment to SCWA for water delivered to enable SCWA to pay capital costs of major operation, and maintenance of the Transmission System. The agreement will remain in effect until June 30, 2040. The water contractors would be required, by the Restructured Agreement for Water Supply,

to implement these water conservation measures, or other alternative conservation measures that secure at least the same level of water savings. This requirement does not preclude the water contractors from implementing additional or more aggressive water conservation measures resulting in additional savings. SCWA and the water contractors will continue their commitment to water conservation and encourage alternative and innovative methods of saving water to increase conservation and achieve higher savings in the future.

Additionally, the Restructured Agreement's provisions include monetary sanctions, which consist of a penalty of 10 percent of the "operations and maintenance charge" to be imposed in the event that a water contractor fails to implement required conservation measures. This penalty provides an economic incentive for compliance with the water conservation requirements.

The City of Napa, also a signatory to the MOU Regarding Urban Water Conservation in California, has integrated water conservation into its long-term water management strategy by developing a series of programs to educate residents and provide water-efficient devices to customers (City of Napa, 2009). The City of Napa sponsors the following conservation programs:

- **Water Wise Survey (Residential and Commercial).** A water wise survey is a free service conducted by a city representative to evaluate water use practices in the home, or in commercial or industrial businesses and institutions. The surveyor checks for leaks, inspects equipment, makes recommendations for lawn or large-scale irrigation, provides instruction for reading the water meter, and offers rebates for water efficient devices, such as clothes washers. The city also replaces pre-1992 toilets with more efficient models.
- **Water Wise Landscaping Workshop.** The workshop series promotes the principles of native landscaping and efficient irrigation, sponsors a demonstration garden, and sells CD-ROMs with gardening tips.
- **Free Devices and Literature.** Customers are eligible to receive water efficient devices including low flow showerheads, faucet aerators, toilet leak detection dye, toilet flapper valves, rain/ sprinkler gauges with a lawn watering guide, garden hose nozzle, and a hose timer.
- **Educational Programs.** The City offers WWTP field trips and classroom presentations in an effort to educate children on the importance of water conservation and demonstrate water saving techniques that can be used in the home.

1.7.9 Sustainability

Member Agency Sustainability Programs

The NBWRA Member Agencies and Cooperating Agencies have existing programs and projects that are intended to meet the goal of increasing the sustainability of their operations. The programs and projects are focused on energy conservation, water conservation, and energy efficiency.

LGVSD

Implementing green practices is an ongoing goal of LGVSD. Sustainable aspects of operations at LGVSD include solar generation, community outreach programs, and habitat restoration. LGVSD currently has 2,490 solar panels that provide an alternative source of energy. The solar power plant produces approximately 850,000 kilowatt-hours per year, which is enough energy to power 283 homes. Generating electricity with solar power avoids the need to run standard power plants using fossil fuels, increases energy independence and reduces pollution. Community outreach programs focus on pollution prevention and public involvement. Habitat restoration projects provide environmental benefits and enhance the natural environment. The LGVSD *Strategic Plan*, adopted in 2008, established other sustainable goals for LGVSD. According to the Strategic Plan, LGVSD will identify methods to decrease their district vehicle emissions to reduce their carbon footprint and address climate change issues (LGVSD, 2008).

Novato SD

Novato SD has been implementing the following water conservation and energy efficiency programs:

- **Ongoing Sustainability Programs.** Novato SD has undertaken numerous sustainability initiatives and continues to develop initiatives over time. In addition, Novato SD participates with the Marin County Sustainability Team to develop policies and programs that will help make the county healthy, vibrant, and sustainable for future generations. As a result of these efforts, Novato SD has been certified as a green business since 2004.
- **Onsite Energy Generation from Byproducts.** Novato SD has reduced air pollution and electricity use with the installation of a microturbine at the Novato WWTP. The microturbine generates electricity by burning the methane gas generated by the Novato SD's biological treatment process, which will reduce energy demand by 7.5 percent. Waste heat from the microturbine is used to heat the biological digester, saving natural gas. Once Novato SD's WWTP upgrade (currently under construction) is complete, Novato SD will increase biomass energy generation to produce up to 40 percent of the onsite power requirements. Novato SD also plans to add solar power.
- **Energy Efficiency Measures.** The major renovation of the aging WWTP, conversion of the Ignacio WWTP into a pump station, and movement of wastewater from the Ignacio Pump Station through a new 6-inch pipeline to the Novato WWTP involved energy saving measures. These measures include a low-pressure ultra-violet disinfection system, premium-efficiency motors, high-efficiency aeration blowers, advanced dissolved oxygen control, and variable-speed pump drives.
- **Water Recycling.** Novato SD recycles wastewater to irrigate landscapes and sustain wildlife ponds and pasture land.
- **Other Sustainable Processes.** As noted above, Novato SD uses ultra-violet light as a substitute to chlorine to treat wastewater. In an effort to reduce fuel consumption and greenhouse gas emissions, Novato SD is converting its fleet to hybrid vehicles. Novato SD is involved with the community, and assists property owners to stabilize eroded banks and improve fish habitat along Novato Creek. Novato SD is also a participant in several "sustainable Novato" projects, including household and electrical waste recycling programs.

SVCSO

Alternative energy sources are also being utilized at the SVCSO WWTP. In May 2007, a solar plant that consists of 5,200 solar panels on a 5-acre plot at the SVCSO WWTP provides at least one-third of the energy needed to fuel the current operations at the WWTP. The panels will rotate to track the sun in order to provide maximum solar energy. Feeding the power into the PG&E grid means an immediate one-third reduction in the total energy cost for plant operation and a future additional reduction of up to 30 percent.

Napa SD

The Napa SD has implemented multiple programs to achieve a more sustainable treatment facility, and also participates in incentive programs for Napa area residents to reduce energy and water use. A recent and ongoing energy conservation measure at the Soscol Water Recycling Facility includes the Aeration Blower Replacement Project, which was completed in September 2008. This project included replacement of existing aeration blowers with new turbo blowers and positive displacement blowers. This conversion in blower technology is resulting in an energy savings of just over 100,000,000 kilowatt hours per year, equivalent to the energy utilized by 148 vehicles in a year. The Napa SD also utilizes co-generation technology, which recovers digester gas produced during anaerobic digestion, then uses it to co-generate electrical power using a gas engine generator. Waste heat, a by-product of power generation, is recovered from the engines and exhaust. The electricity and heat, which are produced by the cogeneration system, are utilized in the plant to reduce purchased electricity and natural gas. Electricity produced by the generators is fed into the plant electrical distribution system for use where needed. The average recoverable energy produced by the cogeneration unit is between 4,200 and 4,500 kilowatt-hours/day (Napa SD, 2008).

Napa SD currently recycles 25-30% of its influent for various purposes including landscape irrigation in business parks, golf courses, and municipal parks, as well as vineyard irrigation. In addition, Napa SD significantly reduces the solids volume sent to a landfill through the beneficial reuse of biosolids generated during operations. Napa SD discards the biosolids into fields to enrich the soil.

In addition to efforts in achieving a more sustainable treatment facility, Napa SD contributes funding to water and energy conservation programs administered by the City of Napa. The Toilet Retrofit Program provides incentives for Napa residents to replace old, water intensive toilets with Ultra-Low Flush Toilets, using 1.6 gallons per flush. Napa residents can either receive a direct \$100 rebate from Napa SD for each retrofitted toilet, or enroll on a waiting list to have their toilets retrofitted through an alternate program administered by the City of Napa. In the alternate program, for each new house in a Napa development, a developer is required to retrofit four houses on the waiting list, at no cost to the homeowners. Napa SD contributes funds to support the Water Conservation Representative responsible for implementation of the Toilet Retrofit Program. Given that toilet flushes and leaks can represent up to 40% of an *indoor* water budget, these programs are an effective approach for water conservation.

Napa SD is also involved in a water conservation program for clothes washers, typically the second largest water user inside the home after toilets. The City of Napa, in combination with Napa SD and **Pacific Gas and Electric Company**, offers residents a combined water-energy rebate on certain high-efficiency clothes washer models. New high-efficiency models use less than half the amount of water used by conventional washers and have higher energy efficiency.

SCWA

In February 2006, SCWA's Board of Directors directed SCWA to take several actions to advance implementation of environmentally sustainable practices by SCWA and to promote adoption of sustainable practices by other entities in the area. Several of the programs such as SCWA's water conservation program, recycled water projects, fishery protection and restoration programs, renewable energy projects, public access on SCWA land, bio-diesel use, and other environmental projects are important components of sustainable resource management. Ultimately, SCWA's goal is to supply water produced without an increase in greenhouse gas and carbon emissions. Since 2006, SCWA has been aggressively pursuing its sustainability initiative with the following programs:

- Construction of 2.0 megawatts of solar energy generation capacity at three facilities;
- Conversion of first plug-in hybrid vehicle by a government agency in Sonoma County;
- Implementation of recognized guidelines from the International Organization for Standardization;
- (ISO) 9001 and 14001 registrations;
- Sponsorship of and participation in several conferences promoting sustainability;
- Filing an application with the Federal Energy Regulatory Commission to perform wave energy;
- Feasibility studies off the coast of Sonoma County;
- Working with the City of Santa Rosa to build a bio-diesel production plant;
- Achieving registration with the California Climate Action Registry;
- Achieving certification from the Sustainable Business Institute;
- Participating in the California Environmental Dialogue;
- Participating in the United Nations Conference on Climate Change in Bali, Indonesia; and
- Achieving a Bay Area Green Business certification for SCWA's administration building.

Nearly 20 percent of the electrical energy in SCWA's service area is spent on the supply and treatment of water. SCWA, along with the County of Sonoma and the incorporated cities in the county, has made a commitment to reduce greenhouse gas emissions by 25 percent below 1990 levels by 2015. The intent of SCWA's sustainability program is to make SCWA and its projects a field laboratory for testing new technologies that reduce greenhouse gas emissions and comply with new and emerging regulatory requirements. In March 2008, SCWA's Board of Directors directed SCWA to work collaboratively with County of Sonoma staff and other stakeholders to implement

the actions listed below to promote energy efficiency and renewable energy in SCWA's operations and projects:

- Create “zero net energy” communities by implementing geothermal heat pump technology and other energy efficiencies;
- Expand use of plug-in hybrid vehicles via incentive programs and volume purchases;
- Collect and analyze electric load data to evaluate opportunities for development of renewable energy projects, and harnessing wave energy;
- Build coalitions with other communities with similar goals; and
- Host conferences related to emerging technologies

As new projects are developed, SCWA will continue its ongoing sustainability programs and participation in climate change protection activities, and will incorporate state-of-the-art water and energy efficiencies into the project wherever possible. SCWA will also evaluate and seek opportunities to use renewable energy for facilities, minimize the use of chemicals and power necessary to provide water supply services, and use technology to improve operational processes. Opportunities for “green building” will be investigated for feasibility. Overall, the goal will be to reduce the environmental impact of construction and reduce the embedded energy of the materials incorporated into the work. This can include everything from using bio-diesel blends in the construction equipment, fly ash concrete⁵, local sourcing of materials where possible, and on-site reuse or recycling of construction debris. In addition, SCWA will continue its practice of replacing pool vehicles with smaller hybrid vehicles, lighter fuel efficient trucks, and vehicles using other alternative fuels, as technology becomes available.

1.8 Public Scoping and Response to Climate Change Comments

The initial scoping process, required under NEPA by the CEQ regulations (40 CFR 1501.7), was designed to solicit comments and identify issues that participating agencies and interested members of the public consider to be the principal areas for study and analysis. Significant environmental issues raised during scoping are addressed in the EIR/EIS to the extent applicable. In summary, several major issues identified by stakeholders during the scoping process relate to the carbon footprint of the project, the relationship of the project to AB 32, increased greenhouse gas emissions with respect to climate change, and the overall sustainability of the project. Scoping comments expressed concern for the net carbon impact of treating and delivering the proposed volume of recycled water compared to the impact of current practices and the impact of pumping to irrigate crops. Some stakeholders wanted the project to provide a net reduction in regional carbon emissions and believe the EIR/EIS should evaluate the project in the context of the worst case scenario of climate change.

⁵ Fly ash, an industrial by product of coal-fire electric power generation, is a fine, glass-like powder composed of silica, aluminum, and iron that can be recycled as concrete material. It is a cost-competitive substitute for Portland concrete, and is generally considered environmentally superior because it requires less water than Portland concrete, is recycled from material that is normally dumped in landfills, and has a low embodied energy (Tool Base Services and NAHB Research Center, 2008)

In an effort to evaluate the carbon footprint of any new project, both to comply with applicable State and federal law, as well as because the NBWRA intends to minimize unnecessary project contributions to carbon emissions, NBWRA investigated the carbon emissions of the project. In addition, in response to public requests for consideration of the emissions related to the broader regional water development, use, and discharge system, NBWRA convened meetings with an energy and resource technologies expert, Ned Orrett, P.E., to discuss the subject of energy consumption related to the regional municipal water development, use, and discharge system. The following discussion summarizes these meetings, and establishes that these are separate issues from the environmental impacts associated with the NBWRP and are beyond the analysis and mitigation in this EIR/EIS.

The largest component of energy use related to the municipal water system occurs in the home, due primarily to the fact that water is heated in the home for a variety of uses, including food preparation and washing. Home use, by far, results in the largest contribution of carbon to the environment when viewed in the context of the overall regional municipal water system. Strategies and technologies are emerging that are designed to reduce greenhouse gases associated with heating of water in the home; however, those strategies and designs have not been broadly adopted or incorporated on a scale that would result in significant reduction of greenhouse gas emissions in the region.

The NBWRP relates to water after it leaves the home, and enters the WWTPs for water treatment prior to reuse. Regardless of the intended goals of SCWA as a wholesaler, or the NBWRA Member Agencies, none of the agencies have any legal authority to require changes to current water use practices in homes. As discussed above, the Member Agencies have implemented a variety of technologies that promote sustainability and target greenhouse gas reductions on the municipal side.

Some of these technologies could be included on the California Air Pollution Control Officers Association (CAPCOA) "Green List". The CAPCOA, comprised of representatives from 35 local air quality agencies, is involved in training local air district staff on air pollution control techniques, researching new technologies and planning for future needs, and coordinating with federal and state air quality officials to develop and implement statewide air quality regulations. CAPCOA recently developed the "Green List"⁶, a list of projects and project types that are deemed a positive contribution to California's efforts to reduce greenhouse gas emissions. The Green List will be updated every six months or as major regulatory or legal developments unfold (CAPCOA, 2008). California Air Resources Board (CARB) and the Attorney General are consulted prior to listing of a project on the Green List to ensure consistency with Assembly Bill 32 (AB 32) efforts and to ensure that the Green List entries are consistent with how the Attorney General's office interprets AB 32 and GHG CEQA compliance.

⁶ The definition and function of the Green List is explained in the CAPCOA white paper entitled "CEQA and Climate Change as part of a conceptual approach to developing GHG significance criteria, CAPCOA, 2008.

The potential Green List entries include project types such as wind farms, high-density infill projects, extension of transit lines, projects with LEED “Platinum” rating, and cogeneration plants with a capacity of 50 megawatts or less at existing facilities (as defined in Class 29 Categorical Exemption). It should be noted that the Green List recognizes expansion of recycling facilities within existing urban areas and recycled water projects that reduce energy consumption related to water supplies that service existing development as projects that would be considered to have less than significant impacts for greenhouse gas emission purposes. This list demonstrates the relationship between recycled water projects and greenhouse gas emissions, and further supports that the NBWRP would not contribute to a long-term increase in greenhouse gas emissions.

Nevertheless, the public has raised an important issue for consideration by the broader array of agencies that are responsible for the various stages of water development, use, and discharge. Given the contribution to greenhouse gas emissions that has been demonstrated to occur in homes, NBWRA believes that a robust consideration of strategies to reduce those emissions is in order.

This is comparable to strategies that both required changes in, and provided public incentives to improve the efficiency of, water consumption practices in homes. A large-scale public initiative in California to replace inefficient sinks, faucets, toilets and appliances with more efficient ones has resulted in major reduction of demand on California’s limited water supplies. A similar initiative should be considered to reduce the generation of greenhouse gases in the home by replacing inefficient water heating technologies and appliances with those that are more efficient.

Although the Member Agencies cannot directly control in-home water use and energy consumption, the lead agency, SCWA supports Assembly Bill 811 (AB 811), approved by the Governor July 21, 2008, which authorizes local legislative bodies to determine that it would be in the public interest to designate an area with which authorized city officials and free and willing property owners may enter into contractual assessments to finance the installation of distributed generation renewable energy sources or energy efficient improvements that are permanently fixed to real property. The Legislature found that energy conservation efforts, including the promotion of energy efficiency improvements to residential, commercial, industrial, or other real property are necessary to address the issue of global climate change. SCWA, along with several other North Bay local governments, has implemented energy efficiency standards and other strategies that are designed to curb greenhouse gas production. However greenhouse gas emissions generated by in-home water use practices are a separate issue, and unrelated to the environmental impacts associated with the NBWRP; as such, they are beyond the scope of analysis for this EIR/EIS, and are not analyzed.

1.9 Documents Incorporated By Reference

Several documents are referred to and are incorporated in part by reference in this Draft EIR/EIS. As provided for by CEQA Section 15150, an EIR/EIS may incorporate by reference all or portions of another document which is a matter of public record or is generally available to the public. The incorporated portions of other documents are considered in full as part of the text of

the EIR/EIS. The EIR/EIS must indicate where the incorporated document is available for public review, and the relationship of the referenced document to the EIR/EIS analysis.

The following documents are incorporated by reference and are available for review to gain an understanding of previously completed Master Planning efforts and environmental documents completed by the NBWRA Member Agencies and applicable to the Proposed Action:

1. *Napa River Salt Marsh Restoration Project DEIR/EIS*, April 2003, (State Clearing House Number 1198072074). Certified by California State Coastal Conservancy, April 2003. *Final Napa River Salt Marsh Restoration Project EIR*, April 14, 2004. *Final Napa River Salt Marsh Restoration Project EIS, Vol. 2: Comment Letters and Responses*, June, 2004. Prepared by Jones and Stokes. The California State Coastal Conservancy (Coastal Conservancy), U.S. Army Corps of Engineers (USACE), and California Department of Fish and Game (CDFG) (project sponsors) are proposing a salinity reduction and habitat restoration project for the 9,456-acre Napa River Unit of the Napa-Sonoma Marshes Wildlife Area (Napa River Unit).
2. *Phase 3 Engineering and Economic/ Financial Analysis Report for the North San Pablo Bay Restoration and Reuse Project*, Bureau of Reclamation and SCWA, 2008. Prepared by CDM. The Phase 3 Report, completed in June of 2008, presents a detailed engineering development and evaluation of three alternatives as well as a “No Future Action” alternative. This feasibility report presents an engineering evaluation of a proposed project for a regional approach to reclamation and reuse of treated wastewater in the North San Pablo Bay area of California. The report describes the Proposed Project area and the key water management problems and needs within the Project area, identifies water reuse opportunities in the project area, develops and analyzes alternative measures that could address the identified water management needs, presents an overview of associated legal and institutional requirements, and provides an economic analysis.
3. *Sonoma Valley Recycled Water Project EIR* (State Clearinghouse Number 2005092083), Certified by Sonoma Valley County Sanitation District, December, 2006. Prepared by ESA. SVCSD completed the Final Environmental Impact Report (EIR) in December 2006. The Proposed Project would reduce the discharge of treated wastewater to the waters of the United States and provide a reliable recycled water distribution system to serve agricultural, municipal, and industrial users for irrigation in the Sonoma Valley. The Proposed Project would provide up to approximately 2,750 AFY of recycled water and consist of the construction, operation, and maintenance of approximately 34 miles of recycled water pipelines; capacity and operational storage facilities; one booster pump station; one distribution pump station; associated connecting pipelines; and other appurtenances. The report is detailed with project-level and program-level analysis of the Proposed Project.
4. *Napa Sanitation District Strategic Plan for Recycled Water Use in the Year 2020, Final Draft*, August 2005. Prepared by Larry Walker Associates. The Napa SD completed a Strategic Plan in August 2005 to determine a recycled water planning approach through the year 2020. The potential for recycled water production was estimated to be 9,800 AFY in 2020 if additional storage were available, and 4,540 AFY using existing storage. Various strategies were proposed for consideration ranging from minimal to full recycling, with an associated range of benefits. Recommendations for strategies include consideration of

potential revenues from grants and recycled water users for each strategy. Strategy No. 3 is recommended for phased implementation, but only as funding becomes available. If outside funding is not available, then Strategy No. 2 is recommended, which delivers only enough recycled water to reliably meet NPDES permit requirements.

5. *Final Recycled Water Expansion Hydraulic and Preliminary Engineering Analysis: Phase I Report- Milliken-Sarco-Tulocay (MST) Area*, May 2007. Prepared by Brown and Caldwell. Napa SD and Napa County are investigating expanding Napa SD's existing recycled water system from the corner of Streblov Drive at Napa Valley Community College into southern MST to provide recycled water that will augment surface and well water usage in the basin. The total area that could potentially be serviced is approximately 5,360 acres and includes over 1,100 parcels. Depending on how many users there are, the proposed project will provide between 1,000 and 2,000 AFY of recycled water to the region for outdoor irrigation use.
6. *Recycled Water Implementation Plan*, May 2006. North Marin Water District and Novato Sanitary District. Prepared by Nute Engineering and Winzler & Kelly Consulting Engineers. The Implementation Plan presents a revised basis of design and construction budget for the optimized recycled water treatment and distribution facilities and aligns the project phasing with guidelines for Proposition 50 funding opportunities. The Plan summarized the following recommendations: NMWD should proceed towards implementation of the North service area projects; NMWD and Novato SD should enter into a formal agreement regarding further implementation of the Center service area projects; NMWD should enter into discussions with LGVSD regarding implementation of the South service area project; NMWD should undertake a public information and outreach program; NMWD should develop policies and ordinances necessary for implementation of the project and a programmatic funding source for the projects.
7. *Napa State Hospital Feed and Loop Pipelines and Reservoir Project- Pipeline Alignment and Modifications Mitigated Negative Declaration (MND) and Addendum*, Certified by Napa Sanitation District, January 2007. Prepared by ESA. Napa SD proposed to modify the alignment of the pipeline between Streblov Drive and the potential new storage reservoir to meet irrigation demands at Napa State Hospital and to utilize existing and future treated wastewater as recycled water to meet irrigation demands in areas north of Napa State Hospital in the future. The MND concluded that the pipeline realignment reduces impacts by avoiding wetlands and reducing construction in raptor nesting areas. The Addendum proposed changes to the alignments under the project based on engineering and design efforts subsequent to MND adoption. The Addendum satisfies the requirements of CEQA Guidelines Sections 15162 and 15164.

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