Section 7
Legal and Institutional Requirements

Throughout development of the North San Pablo Bay Restoration and Reuse Project (Project), legal and institutional requirements have influenced the planning process. This section describes the Project's institutional framework, interactions with other agencies, and legal requirements. The Project's effects on the environment, study area economy, and water rights are also discussed.

7.1 Memorandum of Understanding

The Project participants agreed early in the planning process that they should operate within a jointly established, formal structure. They considered two ways to organize themselves: through a joint powers authority (JPA), or through a memorandum of understanding (MOU).

An MOU can be used to form an organization for any purpose within the authority of a member agency, and such an organization is easily formed through signature of the MOU contract by member agencies. Under an MOU, the signatory agencies can adopt an organizational structure that allows them to pursue a common purpose, but limits the entity formed by the MOU from contracting, incurring debt, or employing staff directly.

A JPA is a stronger organization structure than an MOU, serving as a coordinating tool for separate parties with common interests as defined under Government Code Section 6500 *et seq*. Parties administer the purpose and goals of the agreement through a range of powers, including but not limited to: entering into contracts; employing agents and employees; bond issuance; and acquiring, constructing, managing, or operating facilities. Authority available under a JPA is in addition to the power inherent in the individual member agencies.

7.1.1 Formation Activities

The member agencies agreed that when the Project becomes operational, they may want to work together under a JPA, as the JPA entity would be able to undertake the actions necessary to implement this type of project. Establishing a JPA requires extensive legal and political discussion within each participating agency, however, and these discussions could take many months. The member agencies determined that an MOU could meet their organizational needs during the planning process by establishing a joint process and effective structure while not yet establishing a formal entity to implement the Project.

The member agencies discussed this issue at a series of workshops starting in Fall 2003. The MOU created the North Bay Water Reuse Authority (Authority) and was signed by the five member agencies (Sonoma County Water Agency, Napa Sanitation District, Sonoma Valley County Sanitation District, Novato Sanitary District, and Las Gallinas Valley Sanitary District) by August 24, 2005, and amended in January 2008.

7.1.2 Responsibilities

The MOU establishes the Authority and outlines the purposes of this group, including 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 MOU created a "Coordination Committee," consisting of one member of each signatory agency, to conduct the business of the Authority. The MOU also identifies that the MOU participants shall designate an "Administrative Agency," currently the Sonoma County Water Agency (SCWA), to enter into contracts and perform administrative duties on behalf of the Authority. Members split the costs of any Authority actions with one half of the costs evenly divided among all signatories, and the other half divided in proportion to the agencies' operating budgets (except for SCWA, which contributes five percent of its annual transmission system operating budget).

7.2 Agency Consultation Activities

As part of the Title XVI process, the member agencies must consult with other Federal, state, and local agencies as required by laws and regulations. The member agencies have begun informal discussions with several of these agencies to keep them informed of the Project's progress and to seek their assistance in moving the Project forward. The formal consultation process is largely related to the environmental documentation effort, and the member agencies will complete this consultation as part of the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) process in 2008 and 2009. Formal consultation will include the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and the California Department of Fish and Game (CDFG) as required by the federal and state Endangered Species Acts, the Fish and Wildlife Conservation Act, and the Natural Community Conservation Planning Act.

The member agencies began communicating with local agencies during the Phase 1 feasibility study efforts and have continued to do so throughout Phases 2 and 3. An important local issue is that the Project may involve serving water to areas that are outside of the Project partners' official boundaries. To address this institutional constraint, the member agencies initiated discussions with the Local Agency Formation Commissions to understand the process that the Project partners need to follow in order to deliver recycled water outside of statutory boundaries.

The Project would also involve the delivery of recycled water service to areas that are within the service areas of other water purveyors. Agency consultation efforts include reaching out to these purveyors, including the North Marin Water District (NMWD), Marin Municipal Water District (MMWD), and Los Carneros Water District (LCWD), both to keep them informed and to determine if they are interested in greater levels of participation in the Project. As discussed in Section 1, NMWD is contributing financial

and technical support to the Authority. MMWD declined to participate and LCWD is still considering joining the Authority.

7.3 Effects of Recycled Water Use

The Project would alter the disposition of recycled water by reducing discharge into the San Pablo Bay and its tributaries and instead providing increased recycled water supply to agricultural, urban, and environmental uses. This shift results in economic and environmental changes within the region. Environmental considerations of the alternatives are discussed in Section 10, and more detail will be available in the EIS/EIR currently under development. The costs and benefits of the Project are discussed in Section 9, Economic/Financial Analysis. The sections below briefly summarize the basis for each analysis.

7.3.1 Economic Effects

The Project's main economic benefit is associated with the increased reliability of water supply within the study area. The recycled water would increase the reliability of supplies for urban landscaping irrigation, agricultural irrigation, and restoration of the Napa Salt Marsh. Agricultural water supply would be primarily delivered for high-value vineyard production. Reliable water supplies for these uses are more cost efficient to purchase than intermittent supplies, so any project that increases the reliability of water supplies has real and quantifiable economic benefit to users.

An additional reliable water supply in the area would alleviate concerns that surround the potential of future drought conditions. During times of drought, or as area population increases, use of recycled water for irrigation of landscape and crops would help reduce demand on existing potable water supplies.

7.3.2 Environmental Effects

The Project would reduce discharges of treated wastewater effluent to San Pablo Bay and its tributaries by providing recycled water for use in landscape and agricultural irrigation and as an environmental water supply for the Napa Salt Marsh. As discussed in Section 4, the recycled water produced under this Project will meet Title 22 standards for unrestricted use. It is recognized, however, that some members of the public may have concerns about the use of recycled water on parks or other high-use public areas. Section 7.4 discusses some of the regulatory requirements currently in place for managing the design and operation of recycled water systems in order to safeguard the health and safety of the public and environment. The environmental analysis of alternatives in the EIS/EIR will analyze these impacts in more detail and will include recommended mitigation measures, as necessary.

Outreach to the public and to stakeholder groups, as a means of engaging them in understanding of the Project's alternatives and their relative merits, will be conducted as part of the Authority's general public outreach and the EIS/EIR process. Early public engagement of this type helps to build a solid foundation for public acceptance and endorsement in later phases of actual implementation.

The EIS/EIR will also include consideration of the other impacts associated with construction and operation of the pipelines, pump stations, and storage facilities included in each alternative.

7.3.3 Water Rights Effects

In many recycled water programs, decreased discharge of effluent to waterways has the potential to affect the water rights of downstream users. In this Project, however, there is little likelihood of such an impact, as the water downstream is generally brackish and there are no users of the water. Therefore, the Project will not affect water rights of downstream water users.

Some potential recipients of recycled water may be concerned that decreasing use of their existing surface water supplies may jeopardize their surface water rights. Legal investigation into this issue has shown, however, that shifting from surface water to recycled water will not create the potential to lose the initial surface water right.

California Water Code Section 1010 asserts that no claim of water right (riparian, pre-1914 appropriative, post-1914 appropriative) will be reduced or lost as a result of the use of recycled water. The use of recycled water in lieu of surface water is equivalent to maintaining that right and will be a beneficial use. Section 1010 states,

> "(a)(1) The cessation of, or reduction in, the use of water under any existing right regardless of the basis of right, as the result of the use of recycled water, desalinated water, or water polluted by waste to a degree which unreasonably affects the water for other beneficial uses, is deemed equivalent to, and for purposes of maintaining any right shall be construed to constitute, a reasonable beneficial use of water to the extent and in the amount that the recycled, desalinated, or polluted water is being used not exceeding, however, the amount of such reduction.
>
> (2) No lapse, reduction, or loss of any existing right shall occur under a cessation of, or reduction in, the use of water pursuant to this subdivision, and, to the extent and in the amount that recycled, desalinated, or polluted water is used in lieu of water appropriated by a permittee pursuant to Chapter 6 (commencing with Section 1375) of Part 2, the board shall not reduce the appropriation authorized in the user's permit." (California Water Code §1010(a))

California Water Code Section 13551 establishes that potable water shall not be used for nonpotable uses if suitable recycled water is available. The use of recycled water constitutes beneficial use under any existing water right. Section 13551 states,

> "A person or public agency, including a state agency, city, county, city and county, district, or any other political subdivision of the state, shall not use water from any source of quality suitable for potable domestic use for nonpotable uses, including cemeteries, golf courses, parks, highway

landscaped areas, and industrial and irrigation uses if suitable recycled water is available as provided in Section 13550; however, any use of recycled water in lieu of water suitable for potable domestic use shall, to the extent of the recycled water so used, be deemed to constitute a reasonable beneficial use of that water and the use of recycled water shall not cause any loss or diminution of any existing water right." (California Water Code §13551)

7.4 Regulatory Requirements

Several State and Federal agencies have regulatory power over projects that affect water quality and sources of supply, and implementation of the Project will require coordination with such agencies, as well as with a number of county, city, municipal, and private agencies. Table 7-1 lists the federal, state, local, and private agencies that need to be contacted for permits or special coordination in order for the Project to progress. Federal and state regulatory requirements applicable to the Project are described following the table.

Table 7-1
Jurisdictional and Stakeholder Agencies

Agency Name	*Permits or Special Coordination*
Federal Agencies	
US Bureau of Reclamation	Title XVI Funding for Recycled Water Project
US Army Corps of Engineers	Nationwide 12 and 18 Pre-construction Notification State Historic Preservation Office – Programmatic Agreement Section 404 of Clean Water Act Section 10 of Rivers and Harbor Act
USFWS	Section 7 Consultation – Endangered Species Act
NMFS	Endangered Species Act Consultation
State Agencies	
California Department of Public Health (DPH)	Title 22 – Recycled Water Regulations Drinking Water Monitoring and Regulations
California Environmental Protection Agency	Drinking Water Standards delegated to DPH
CDFG	Lake or Streambed Alteration Agreement
California Department of Transportation	Encroachment Permit
San Francisco Bay Regional Water Quality Control Board	401 Certification or Waiver Water Reclamation Permit Modification to Basin Plan
State Lands Commission	California Planning, Zoning, & Development Law
State Water Resources Control Board	Water Rights Permit Place of Use Approval

Table 7-1 Jurisdictional and Stakeholder Agencies	
Agency Name	***Permits or Special Coordination***
Local Agencies	
Association of Bay Area Governments	Consistency Determination
Carneros Wine Alliance	Potential Users
City of Napa	Development Permit
City of Novato	Development Permit
City of San Rafael	Development Permit
City of Sonoma	Development Permit
Marin County	Grading/Riparian/Building Permits
Napa County	Encroachment Permit Grading/Riparian/Building Permits
Sonoma County	Encroachment Permit Grading/Riparian/Building Permits
Southern Sonoma County Resource Conservation District	Outreach Group for Potential Users
Private Agencies	
Pacific Gas & Electric	Infrastructure Review
Cable providers	Infrastructure Review
Telephone providers	Infrastructure Review
Railroad	Infrastructure Review

7.4.1 Title 22 California Code of Regulations

According to Title 22 of the California Code of Regulations (CCR), recycled water can be used for irrigation, wetlands, restricted and non-restricted recreational impoundments, landscape impoundments, industrial or commercial cooling or air conditioning, toilet flushing, and industrial and construction applications (22 CCR). As discussed in Section 4, all recycled water served by the Project will be treated to disinfected tertiary recycled water standards. Treatment to tertiary standards can be readily achieved using a variety of filtration and disinfection methods that are both reliable and relatively common to the wastewater treatment industry.

Title 22 also sets use requirements for the separation of areas irrigated with recycled water from domestic groundwater supply wells. The domestic well guidelines are as follows:

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

Additional use requirements include the following:

- "Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency."
- "Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities."
- "Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff."
- "No spray irrigation of any recycled water, other than disinfected tertiary recycled water, shall take place within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or school yard."
- "All use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public…that include the following wording: 'RECYCLED WATER - DO NOT DRINK'."
- "Except as allowed under section 7604 of Title 17, California Code of Regulations, no physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water."
- "The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access." (22 CCR)

7.4.2 California Fish & Game Code

Sections 1601-1616 of the California Fish and Game Code (also known as the Lake or Streambed Alteration Agreement Program) refer to any projects that affect the flow, channel, or banks of rivers, streams, and lakes. Section 1602 states that public agencies and private individuals must notify the CDFG before construction begins for any projects that will have the following elements and effects:

- Divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit;
- Use material from the streambeds designated by the department;
- Result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement that can pass into any river, stream, or lake designated by the department; and

- An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream (CDFG 2003).

If any effects to waterways were determined during the environmental analysis phase, these Sections would require a streambed alteration agreement.

7.4.3 California Water Code

Division 7 of the California Water Code is designated the Porter-Cologne Water Quality Control Act, which includes the permitting of wastewater treatment plants and water recycling facilities, as well as other water quality-related provisions. The Porter-Cologne Water Quality Control Act establishes the State Water Resources Control Board and each Regional Water Quality Control Board as the principal State agencies with primary responsibility for coordinating and controlling water quality and water rights in California. The Porter-Cologne Act is the primary implementation tool for California's responsibilities to regulate pollutant discharge as established under the Clean Water Act.

Division 7, Chapter 7.5 of the California Water Code, also known as the Water Recycling Act of 1991, recognizes the interest to develop water recycling facilities to supplement existing surface water and groundwater supplies in order to meet the State's future water needs. The Code authorizes each regional board, after consulting with and receiving recommendations from DPH, to set requirements which may be placed on the person reclaiming water, the user, or both, for water that will be used as recycled water. The Code establishes reporting and permitting requirements for the regional boards, which must work collaboratively with DPH. Additionally, it generally defines conditions under which recycled water may be used. The conditions for use include:

- If the source of recycled water is of adequate quality, which is determined by DPH criteria, and does not harm plants, wildlife, and the public health;
- If recycled water may be furnished at a reasonable cost to the user; and
- If the use of recycled water will not adversely affect water rights (DPH 2001).

Assembly Bill No. 1481, passed in October of 2007, added Section 13552.5 to the Water Code, requiring the state board to adopt a general permit for landscape irrigation uses of recycled water by July 31, 2009, for which DPH has established uniform statewide recycling criteria pursuant to Section 13521. The bill would require the state board to establish a reasonable schedule of fees to reimburse the state board for the costs it incurs in implementing, developing, and administering these provisions.

7.5 Other Obligations and Constraints

It is the intent of the member agencies that the Project would not adversely affect any of the agencies' contractual water supply obligations for recycled water. The agencies' existing recycled water customers would continue to be served as they are now and existing customers have been accounted for in the calculations of future recycled water supplies. Implementation of the Project would likely increase the reliability of drinking water supplies in the study area because recycled water would be provided to meet a portion of the nonpotable demand, thus freeing more potable supply for potable uses and emergency situations.

Indian Trust Assets (ITAs) are legal interests in property held in trust by the U.S. for federally-recognized Indian tribes or individual Indians. ITAs can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with a reservation or rancheria. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land. There are no federal or state-recognized Indian reservations or rancherias in the study area. Indian lands and ITAs will be analyzed as appropriate in the environmental documentation.

Section 8
Recommended Alternative

This section presents a summary of the issues discussed to this point, a comparison of the alternatives, and a selection of the recommended alternative for the North San Pablo Bay Restoration and Reuse Project (Project).

8.1 Issue Summary

The Project provides a regional approach for the use of recycled water in the North San Pablo Bay area. This feasibility report describes the Project area, the key water management problems and needs within the Project area, identifies water reuse opportunities, and develops and analyzes alternative measures that could address the identified water management needs.

8.1.1 Summary of Problems and Needs

The member agencies of the North Bay Water Reuse Authority (Authority) are conducting this feasibility study because they recognize the need to address mounting environmental, regulatory, and water supply concerns in their service areas and in the North San Pablo Bay area in general. The North San Pablo Bay is unique because of the mix of sensitive environmental areas, growing urban areas, and high-value agricultural areas. Each of these sectors is affected by existing water management needs and will be exposed to increasing water management challenges in the future.

The problems and needs include:

- The agricultural economy, dominated by high-value vineyard agriculture, requires a highly reliable water supply to maintain and expand its crop base.
- Urbanization of the greater San Francisco Bay Area requires highly reliable water sources.
- 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 supply of water.
- Surface waters are becoming less reliable sources of supply as they 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.
- Groundwater supplies are heavily pumped for agricultural and limited municipal uses and in some localities have marginal quality.

The participating agencies developed planning issues and concerns (see Figure 1-2) to define the reasons for undertaking the Study.

8.1.2 Summary of Supplies and Demands

Urban and agricultural land uses broadly constitute the primary water demands in the study area. Major urban land uses in the study area include residential, commercial, public land, open space (such as parks), and industrial designations. The major agricultural uses include vineyards, dairies, and pasture lands.

Table 8-1 summarizes the total water demand in the study area by demand sector in acre-feet per year (AFY)[1]. Urban demands are derived from municipal planning documents. Agricultural demands are derived from land use acreage data and crop specific water demand rates. Section 2.2.1 describes each of the demand sectors in greater detail.

Table 8-1
Total Water Demand in the Study Area(1)

Demand Sector	*2005 (AFY)*	*2020 (AFY)*
Urban (1)	63,668	72,764
Agriculture (2)	23,283	23,283
Environmental (3)	NQ	NQ
Total Demand	**86,951**	**96,047**

(1) See Section 2.2.1.1 Table 2-5 for details. Data for the Petaluma area has been removed from the urban demand data since Petaluma is no longer participating in the Project.
(2) Represents estimated maximum agricultural water use, assumes no change in future agricultural water use. Data for the Petaluma area has been removed from the agriculture demand data since Petaluma is no longer participating in the Project.
(3) NQ = Not quantifiable. Current and future environmental demands are not quantifiable at this time.

The study area receives water from sources both inside and outside the region. Water sources within the region include the Napa River watershed, Petaluma River watershed, and Sonoma Creek watershed (used for agricultural supplies), and Stafford Lake on Novato Creek. Surface water sources outside the region include the Russian River Project (including Lake Mendocino, Lake Sonoma, and imports from the Eel River via Pacific Gas & Electric Company's Potter Valley Project), Lake Hennessey, Milliken Reservoir, Marin Municipal Water District's six Lagunitas Creek watershed reservoirs, Soulajule Reservoir, and the Sacramento-San Joaquin Delta via the State Water Project. The region also relies on groundwater and some existing recycled water as additional sources. Table 8-2 summarizes the total water supply in the study area by source[2]. Section 2.2.2 contains more information about current and future water supplies from these sources.

[1] Data for the City of Petaluma is not included in Table 8-1.
[2] Data for the City of Petaluma is not included in Table 8-2.

Table 8-2 Total Water Supplies in the Study Area		
Supply Source	**2005 (AFY)**	**2020 (AFY)**
Surface Water [1]	139,277	138,617
Groundwater [2]	6,585	1,234
Recycled Water [3]	7,278	11,252
Total Supply	159,457	154,733

(1) Surface water supply data represents the reliable (dry year) supply. See Section 2.2.2.1, Table 2-13 for details.
(2) See Section 2.2.2.2, Table 2-15 for details. Values do not include agricultural pumping in Sonoma Valley, which has not been quantified. Data for the Petaluma area has been removed from since Petaluma is no longer participating in the Project.
(3) See Section 2.2.2.3, Table 2-17 for details. Values include all recycled water use, which exceeds the demands of current recycled water customers. Data for the Petaluma area has been removed since Petaluma is no longer participating in the Project.

In most years, adequate supplies exist to meet demands on an annual basis. Supplies are strained on a seasonal basis, e.g., surface water flows are lowest in the summer when demand is highest. Future urban growth will likely exacerbate this situation, and the additional sources of water supply to meet future demands are limited. Because of the obstacles to increasing the capacity of existing supplies, the identification and development of new supplies will likely be required to meet future yearly and/or seasonal demands. There are a number of local and regional alternatives identified for regional water supply to primarily municipal and industrial users in Marin, Sonoma, and Napa Counties. However, few alternatives have been formulated in the study area to directly serve the demands that would be met by the Project.

8.2 Comparison of Alternatives

The feasibility study evaluates the three action alternatives, plus a phased implementation of each action alternative, and the No Action alternative.

The No Action Alternative assumes that there is no joint Project. It represents the reasonably foreseeable actions taken by the members of the Authority, and other agencies involved in the study area's water supply, to supply users in absence of the Project. The potential need to develop additional potable water supplies, and limit demand on existing potable supplies, would continue to be a regional challenge. Additional wastewater treatment capacity and water recycling might occur strictly from the implementation of local plans for expansion. It is anticipated that the implementation of several of these projects would be required to meet the needs of the Project area. This alternative is discussed in greater detail in Section 6.1.

Alternative 1 would prioritize the importance of recycled water projects local to each wastewater treatment plant (WWTP) and would not attempt to connect any of the WWTPs. This basic regional alternative would be the least expensive alternative, but would ultimately produce less recycled water than larger alternatives. The recycled

water projects included in Alternative 1 are the North Marin Water District (NMWD) Urban Recycled Water Project (including the Stone Tree Golf Course), existing Sonoma Valley County Sanitation District (SVCSD) reuse area, Sonoma Valley Recycled Water Project, Carneros East, Milliken-Sarco-Tulocay (MST) Area, and the Napa Salt Marsh Restoration Project. This alternative is discussed in greater detail in Section 6.2.

Alternative 2 would create a larger regional system and expand the area served in Alternative 1. Pipelines would connect the east side facilities (Napa Sanitation District and SVCSD) and the west side facilities (Las Gallinas Valley Sanitary District [LGVSD] and Novato Sanitary District [Novato SD]), but the two sides would not be connected. The recycled water projects included in Alternative 2 are Peacock Gap Golf Course, NMWD Urban Recycled Water Project (URWP), Sears Point, existing SVCSD reuse area, Sonoma Valley Recycled Water Project, Southern Sonoma Valley, Carneros East, MST Area, and Napa Salt Marsh Restoration Project. This alternative is discussed in greater detail in Section 6.3.

Alternative 3 would create an interconnected regional system that links all four wastewater treatment facilities. This alternative would maximize reuse by potentially allowing water from any plant to be delivered to any area that needs recycled water. Because much of the demand is near Sonoma and Napa, this interconnectivity would allow all of the Project WWTPs to help satisfy the demands in these areas. The recycled water projects included in Alternative 3 are Peacock Gap Golf Course, NMWD URWP, Sears Point, existing SVCSD reuse area, Sonoma Valley Recycled Water Project, Southern Sonoma Valley, Central Sonoma Valley, Carneros East, MST Area, and Napa Salt Marsh Restoration Project. This alternative is discussed in greater detail in Section 6.4.

The Authority member agencies have prioritized the projects within their individual service areas to identify a phased implementation plan for each of the alternatives. This first phase (Phase 1) includes projects that each member agency has defined to a level of detail that allows for both project-level environmental review and short-term readiness for design, funding, and construction. The recycled water projects included in Phase 1 of Alternative 1 are the NMWD URWP, existing SVCSD reuse area, Sonoma Valley Recycled Water Project, MST Area, and the Napa Salt Marsh Restoration Project. This phase of implementation is discussed in greater detail in Section 6.5.

Table 8-3 summarizes the proposed strategy, demand, wastewater discharge, cost, benefits, and challenges of the No Action alternative and the three action alternatives. Comparing the alternatives illustrates the following tradeoffs:

- Alternative 1 would minimize costs, but would also enable reuse of the least amount of recycled water of the action alternatives.

- Alternative 2 would provide a middle ground of costs, recycled water use, and environmental benefits and impacts; however, costs would be 80 percent more than Alternative 1.

- Alternative 3 would maximize use of recycled water, but would have the highest costs (almost twice as much as Alternative 1 and 10 percent more than Alternative 2).

- Alternative 3 would have the greatest environmental benefits associated with reduced treated wastewater discharge to the Bay and increased instream flows; however, it may have increased environmental impacts associated with construction of a greater amount of storage and more pipelines and associated facilities.

- Alternative 3 would maximize regional flexibility by interconnecting all WWTPs and would require substantial cooperation and flexibility between the member agencies to work together to direct supplies.

Based on the analysis presented, the Authority believes Alternative 1 is the most viable based on implementability, storage issues, and costs.

- Alternative 1 requires the least amount of system storage of the action alternatives, making use of existing storage or land available at the WWTPs. Implementing the larger recycled water distribution systems would require 1,400 to 1,800 AF of additional storage.

- Alternative 1 has the lowest capital cost of the alternatives. The cost of delivering recycled water must be cost effective for the member agencies to implement any alternative. Larger alternatives may be too costly (in terms of construction and environmental documentation) for the agencies to pursue at this time without additional external funding.

- At this time, implementation of Alternative 1 would begin with the projects identified as implementation Phase 1 (see Section 6.5), due to current funding opportunities. These projects have been recognized as those most ready for implementation due to the level of detailed analysis already prepared.

Section 9 presents more detail regarding the cost effectiveness of the Project, the economic analysis of the non-recycled water supply options, and the financial capability of the member agencies to implement the Project.

Table 8-3
Summary of Alternatives

Alternative	New Recycled Water Demand (Beneficial Reuse) Developed by the Alternative (AFY) [1]	Total Recycled Water Demand in the Project Area (w/Project) (AFY)	Wastewater Discharged to San Pablo Bay (AFY)	New Storage Required (AF)	New Potable Water Offset (AFY)	Opinion of Probable Total Project Capital Costs (millions) [2]	Benefits/Drawbacks
No Action	0	4,944	22,711	<100 [3]	0	$270 [4]	Benefits: • Requires minimum regional agency coordination. Drawbacks: • Reduces the likelihood of Federal or state funding opportunities • Requires additional, expensive potable water projects to supply the demand served by the Project. • May lead to increased degradation of groundwater quality and groundwater levels.
1 – Basic Regional System	6,455	11,329	16,256	2,598	893	$210	Benefits: • Least costly alternative. • Maximizes use of existing and easily developed storage locations. • Allows for greatest potential Federal and state funding opportunities for all Project stakeholders, compared to No Action Alternative. • Reduces need to develop new potable supplies. Drawbacks: • Utilizes no recycled water from the high supply area of LGVSD/Novato SD in the high demand area of Sonoma/Napa.
2 – Expanded Regional System	11,215	16,159	11,496	4,004	1,085	$378	Benefits: • Allows for greater volume of recycled water use, compared to Alternative 1. • Allows for greater cost sharing opportunities by all Project stakeholders, compared to No Action Alternative. Drawbacks: • Requires new large storage locations to be identified.
3 – Interconnected Regional System	12,725	17,669	9,986	4,441	1,085	$414	Benefits: • Allows for maximum volume of recycled water use. • Allows for greater cost sharing opportunities by all Project stakeholders, compared to No Action Alternative. Drawbacks: • Requires new storage locations, larger than Alternative 2, to be identified. • Most costly alternative.

[1] The new recycled water demand developed by the alternatives represents total beneficial reuse to customers. Additional recycled water is available for the Napa Salt Marsh restoration which is not included in these totals, as the amount of water needed for the Napa Salt Marsh is unknown at this time. Supplying recycled water to the Napa Salt Marsh would further reduce discharge to San Pablo Bay.

[2] The Opinion of Probable Total Project Capital Costs include construction costs (pipelines, treatment improvements, storage, pumping) plus a 20% contingency, 15% allowance, and 25% allowance for non-contract costs. The allowance for non-contract costs includes: preliminary and final design engineering, preparation of construction plans and specifications (11%); construction services including construction management, construction inspection, engineering support during construction, construction surveying, start-up services, and as-built drawings (13%); and project administration and legal support (1%).

[3] Additional elevated storage tanks are anticipated to be required within the potable water system for storage and to sustain system pressure.

[4] Capital costs are estimated to be a minimum of $270 million. See Section 6.1 for more information.

Section 9
Economic and Financial Capability Analysis

The purposes of the economic and financial capability analysis are to determine whether the North San Pablo Bay Restoration and Reuse Project (Project) is cost-effective and would provide net economic benefits to the North Bay Water Reuse Authority (Authority) region, and to identify a preliminary funding plan for the local cost share of the Project. The economic and financial capability analysis is prepared according to the U.S. Department of the Interior Bureau of Reclamation (Reclamation) Title XVI Water Reclamation and Reuse Program Feasibility Study Directives and Standards WTR 11-01 (Reclamation 2008). This section presents three analyses for the Project:

- Life Cycle Cost Analysis – enables comparison of the three recycled water Project action alternatives to determine the most cost-effective alternative. The life cycle costs analysis calculates annual capital costs of implementation Phase 1 of Alternatives 1, 2, and 3 over a 50-year period of analysis using a 3 percent real discount rate and adds annual operations and maintenance (O&M) costs.

- Economic Analysis – evaluates the economic benefits of Phase 1 of Alternative 1 relative to the No Action Alternative. Water supply benefits are calculated using the alternative cost method in which the benefits of the least cost alternative would be the costs of the next least cost alternative. The economic analysis discusses environmental and other indirect benefits qualitatively.

- Financial Capability Analysis – discusses preliminary plans to fund implementation Phase 1, including non-Federal cost sharing and funding options.

The above analyses focus on Phase 1 of the alternatives because the Authority members have identified these components as the most ready for funding and construction. The Authority members are only requesting federal cost-sharing for Phase 1 at this time, and the above analyses are required to support federal decision-making for Phase 1 funding. The remaining components in the alternatives are planned for longer-term, phased implementation.

9.1 Life Cycle Cost Analysis

This section presents the life cycle costs for Phase 1 of Alternatives 1, 2, and 3. Section 6 describes features and total construction and O&M costs of the three alternatives (see Sections 6.2, 6.3, and 6.4). Section 6.5 includes detail on implementation of Phase 1. The Authority members have selected Phase 1 of Alternative 1 as the recommended Title XVI project for implementation (see Section 8.2). Phase 1 of Alternatives 2 and 3 would deliver a similar amount of water as Phase 1 of Alternative 1, but would be sized slightly larger to accommodate added deliveries in the future (i.e., full implementation of Alternative 2 or 3).

Table 9-1 summarizes total, annual, and per acre-foot costs of Phase 1 of Alternatives 1, 2, and 3, along with the supply (in acre-feet [AF]) provided by each alternative's Phase 1. Life cycle costs are calculated over a 50-year period of analysis using a 3 percent real discount rate. All Phase 1 facilities are expected to have a service life of at least 50 years with proper maintenance; costs incurred after 50 years would be significantly discounted and were not considered in this analysis. Use of a real (inflation–adjusted) discount rate alleviates the need to project future cost levels.

Phase 1 of Alternative 1 would provide water at $1,307 per acre-foot, which is slightly lower relative to the per unit costs for Phase 1 of Alternatives 2 and 3. The life cycle and per acre-foot costs for Phase 1 of Alternative 1 (hereafter referred to simply as "Phase 1") will be compared to other non-recycling projects in Section 9.2.1 to determine its cost-effectiveness for providing agricultural and urban water supplies in the region.

Table 9-1
Life Cycle Cost Analysis

	Alternative 1	***Alternative 2***	***Alternative 3***
	Phase 1	***Phase 1***	***Phase 1***
Total Capital Costs	$121,000,000	$121,600,000	$124,000,000
Annual Capital Costs	$4,702,725	$4,726,044	$4,819,321
Annual O&M Costs	$1,381,000	$1,383,000	$1,392,000
Total Annual Costs	$6,083,725	$6,109,044	$6,211,321
Supply (AF)	4,654	4,654	4,654
$ per acre-foot	$1,307	$1,313	$1,335

9.2 Economic Analysis

The economic analysis estimates benefits of the Project relative to future conditions if the Project were not implemented. It is expected that the Project would result in direct benefits to urban and agricultural water supply and environmental quality.

The Project's water supply benefits would occur by providing recycled water for urban landscape and agricultural uses, thus relieving demand pressure on future developable potable water supplies. The Project would also provide high quality water to the Napa Salt Marsh to sustain habitat for many species, including threatened and endangered species. This improved habitat would be an environmental water supply benefit of the Project.

Water supply benefits are measured by comparing the Project costs (Table 9-1) to the costs of a feasible non-recycling project that would provide similar water supplies to the member agencies' service areas (these potential projects are described in Section 6.1). If Project costs are less than the non-recycled water supply, the Project would be considered cost-effective and provide a net economic water supply benefit to the region. Use of alternative costs to compute water supply benefits is a technique

frequently used in evaluating federally developed water supplies, and it is recommended in Reclamation's Directives and Standards WTR 11-01 for economic analysis of Title XVI projects (Reclamation 2008).

The Project would also result in various indirect benefits to the study area, including water quality improvements, increased groundwater levels, and operational cost reductions. These indirect benefits are described qualitatively in Section 9.2.2.

9.2.1 Water Supply Benefits

Phase 1 is expected to provide about 4,654 AF of water for urban landscape and agricultural customers during peak demands. Urban landscape would receive approximately 2,021 AF of recycled water and agricultural users would receive about 2,634 AF, with 90 percent of the recycled water going to vineyards. During non-peak periods, Sonoma Valley County Sanitation District (SVCSD) could potentially provide up to 2,362 AF of recycled water to the Napa Salt Marsh during its maintenance operations. The amount of water required at the Napa Salt Marsh still needs to be coordinated between SVCSD and appropriate regulatory agencies. Water deliveries are further described in Section 6. The following analysis estimates the economic benefits of the recycled water supply.

As indicated above, this analysis uses costs of developing and operating non-recycled water supplies to measure water supply benefits of the Project. Section 6.1 describes alternative non-recycled water projects under the No Action Alternative. Because of the various counties and jurisdictions involved in the Project, several non-recycling projects were identified to serve users in the study area. These projects are briefly described below; Section 6.1 contains more detailed descriptions.

Similar to the Project costs, the costs of the non-recycling water supply projects are discounted over a 50-year period of analysis using a real interest rate of 3 percent. Costs are then converted to a dollar per acre-foot based on the quantity of water the non-recycling project is expected to provide. At this time, all costs for the non-recycling water supply projects are preliminary. This section presents all costs in 2008 dollars.

After dollar per acre-foot costs are identified for the non-recycling water supply projects, they are compared to the dollar per acre-foot costs of the Project. The least cost project would be the most cost effective.

9.2.1.1 Water Supply, Transmission, and Reliability Project

The Sonoma County Water Agency (SCWA) is proposing the Water Supply, Transmission, and Reliability Project (Water Project) to increase potable water supplies to Valley of the Moon Water District (VOMWD), City of Sonoma (Sonoma), and North Marin Water District (NMWD) in the study area. The project proposes to release and use additional water currently stored in Lake Sonoma, and divert and re-divert the water from the Russian River. The proposed Water Project would also

expand the existing transmission system and includes a conservation component. The project is currently in the environmental review stage.

The proposed Water Project is projected to provide an additional 26,000 AF per year (AFY) of Russian River water to the SCWA contractors. VOMWD, Sonoma, and NMWD would receive water supply from the Water Project. Table 9-2 shows the 2005-2006 Russian River water deliveries and the projected deliveries under the Water Project to VOMWD, Sonoma, and NMWD.

Table 9-2
2005-2006 Russian River Water Deliveries and Projected Deliveries under Proposed Water Project

Service Area	Delivered Water 2005-06 (AFY)	Water Project Annual Delivery Limit (AFY)	Projected Increase in Annual Water Supply (AFY)
NMWD	10,706	13,000	2,294
VOMWD	3,101	3,730	629
Sonoma	2,310	3,000	690
Total	16,117	19,730	3,613

SCWA estimates that the total capital costs of the Water Project are about $647 million (2008 dollars) (Booker 2008b). Operation and maintenance costs have not yet been estimated. SCWA contractors would share the total costs of the project; therefore, VOMWD, Sonoma, and NMWD would be responsible for a portion of the Water Project costs. SCWA has not yet completed the cost sharing for the Water Project; however, if costs are apportioned based on 2005-2006 water deliveries, NMWD, VOMWD, and Sonoma would be responsible for about $174.5 million in capital costs.[1] Table 9-3 summarizes NMWD, VOMWD, and Sonoma's capital, present value, and per acre-foot costs for the proposed Water Project. Operation and maintenance costs, which are not yet estimated, would add annually to the project costs.

Table 9-3
Proposed Water Project Preliminary Costs for NMWD, VOMWD, and Sonoma

Total Capital Costs	$174,479,487
Annual Capital Costs(1)	$6,781,232
Annual O&M Costs	N/A
Total Annual Costs	$6,781,232
Supply (AF)	3,613
$ per acre-foot	$1,877

(1) The capital costs were discounted based on a 50-year period of analysis using a 3 percent real discount rate.

[1] The costs are preliminary and subject to change, and were developed solely for comparison to recycled water costs.

The Water Project would deliver water to Sonoma, VOMWD, and NMWD, which would then need to deliver the water to customers at additional costs for a complete comparison to Phase 1 project costs. For example, NMWD's treatment, distribution and delivery cost is about $1,000 per acre-foot, which would be in addition to NMWD's portion of Water Project costs for a new water supply (McIntyre 2008). This analysis recognizes that these additional costs exist, but does not add them to the Water Project costs because the Water Project costs are preliminary and not disaggregated by retail district. Also, because the $1,877 per acre-foot cost for the Water Project is already higher than the Project costs, local treatment and delivery costs were not necessary to show the cost effectiveness of the Project.

9.2.1.2 Groundwater Recharge in Sonoma Valley

Without the Project, agricultural users in Sonoma Valley would continue to rely on groundwater and small surface diversions for irrigation. As described in Section 2.2.2.2, groundwater would not be a sustainable supply in the future if current pumping patterns continue.

To prevent further reductions in groundwater storage, SCWA is investigating potential groundwater recharge projects. Groundwater banking would require an imported water source and recharge facilities, either percolation ponds or injection wells. Stormwater and rainfall recharge would require a collection system and recharge facilities. These projects would serve agricultural water users in Sonoma Valley.

Costs have not yet been developed for these projects. The analysis assumes the Water Project costs would be indicative of these costs because it would serve other users in the same region of Sonoma County. However, the proposed Water Project is not planned to serve agricultural users in Sonoma Valley.

9.2.1.3 Import Water to the Milliken-Sarco-Tulocay Creeks Area

This project would serve potable water and agricultural users in the Milliken-Sarco-Tulocay Creeks (MST) area of Napa County who currently rely on groundwater. The groundwater levels in the MST area are decreasing and groundwater would not likely be a reliable supply in the future (see Section 2.2.2.2.1). There are no other usable local water supplies for the MST area; therefore, importing water appears to be the only alternative to supply users who would be served by the Project. For the alternative cost analysis, the non-recycled water supply project would bring imported water to the MST area for potable water users. These imported water supplies would likely be wheeled through the State Water Project's North Bay Aqueduct (NBA), which would need to be expanded to accommodate new water supplies.

Costs for this project would include costs for water purchases, the distribution system, and expansion of the NBA. This analysis assumes that Napa County would import 1,937 AF to serve the MST area, which is the same amount of recycled water the Project would provide to MST under Phase 1. Long-term water supply is assumed

to cost about $9.7 million, a new distribution system about $40 million (Riesenberg 2008), and the NBA expansion to accommodate Napa's water supply about $38 million.[2] Napa County also assumes legal and administrative fees to implement this alternative would be about $8 million. Therefore, total costs would be about $95.7 million, which does not include annual operating and maintenance costs. Section 6.1.2 further describes these features and potential costs. Table 9-4 summarizes the assumed total, annualized, and per acre-foot costs to import potable water to the MST area. The costs to import about 1,937 AF of water to the MST area would be about $1,920 per acre-foot.

Table 9-4
Preliminary Costs to Import Water to the MST Area

Total Capital Costs	$95,700,000
Annual Capital Costs(1)	$3,719,428
Annual O&M Costs	N/A
Total Annual Costs	$3,719,428
Supply (AF)	1,937
Dollar per acre-foot	$1,920

(1) The capital costs were discounted based on a 50-year period of analysis using a 3 percent real discount rate.

9.2.1.4 Summary Cost Comparison

This section compares the Project costs with the non-recycling project costs to determine the cost-effectiveness of the Project. Table 9-5 summarizes the life cycle costs and per acre-foot costs of the Project and non-recycling water supply projects. The table also presents the annual quantity of water delivered under each water supply option.

The Project would cost $1,307 per acre-foot to serve about 4,654 AF to agricultural and urban users in the study area and to the Napa Salt Marsh. Preliminary costs for the Water Project indicate that it would be more expensive than the Project to serve urban users in Sonoma Valley and NMWD, about $1,877 per acre-foot. The Water Project would not serve agriculture in the Sonoma Valley, but this analysis assumes the Water Project's costs are indicative of delivering a new water supply to the region. Planning cost estimates for importing water to the MST area are about $1,920 per acre-foot, which is also more expensive than the Project costs to provide the same amount of water to the MST area. No water supply projects have been planned for specific water deliveries to the Napa Salt Marsh, so alternative costs have not been included as a quantitative measure of benefits in this report. However, costs of both the Water Project and importing water to Napa County are indicative of the high costs of developing environmental water supplies in the study area.

[2] Costs are preliminary and for planning purposes only.

Table 9-5 Summary Cost Comparison			
	Alternative 1 Phase 1	***Water Project (Sonoma and Marin Counties Portion of Project area)***	***Import Water to MST Area (Napa County portion of Project area)***
Annual Capital Costs	$4,702,725	$6,781,232	$3,719,428
Annual O&M Costs	$1,381,000	N/A	N/A
Total Annual Costs	$6,083,725	$6,781,232	$3,719,428
Supply (AF)	4,654	3,613	1,937
Dollar per acre-foot	$1,307	$1,877	$1,920

Based on the cost estimates in Table 9-5, the Project would be the most cost-effective to implement relative to other water supply projects in the region. The benefits of Phase 1 Alternative 1 would be the alternative costs, which are $1,877 per acre-foot for Sonoma and Marin County users and $1,920 per acre-foot for Napa County users. Recycled water would also provide an important offset to potable water use that could then be delivered to meet potable water needs. The economic benefits of this offset would be even larger during a dry year or drought conditions.

9.2.2 Other Project Benefits

The Project would serve environmental needs of the Napa Salt Marsh. The Project would also result in various indirect benefits to the Authority's region, including water quality improvements, increased groundwater levels, and operational cost reductions. These benefits are described qualitatively and would add to the economic justification for pursuing a recycled water project.

Groundwater basins close to the San Francisco Bay, including those in Sonoma and Napa Counties, have areas of high total dissolved solids, largely from saline intrusion from the Bay. Saline groundwater is unusable for either urban drinking water needs or for irrigating crops and threatens the long-term sustainability of the basin. The Project would offset groundwater pumping by delivering recycled water to agricultural and urban users that currently rely on groundwater. Decreasing groundwater pumping would increase groundwater storage and potentially decrease saline migration in the basin.

In addition to improving groundwater quality, the Project could potentially improve the long-term sustainability of the basin by reducing groundwater overdraft. The Project would provide a consistent annual source of recycled water to agricultural and urban users. This water source could offset groundwater pumping each year and the basin would benefit from an increased amount of from natural recharge. Increasing groundwater storage would also reduce groundwater pumping costs and may

prevent expenses for well deepening or replacement. These groundwater quality and groundwater storage improvements would be indirect benefits of the Project.

Providing a water use for the treated wastewater would decrease discharges into North San Pablo Bay and would reduce operation costs of the sanitation districts during the no-discharge period. For example, Las Gallinas Valley Sanitary District (LGVSD) currently pumps unused effluent to pasture fields. LGVSD estimates that the average annual cost to pump effluent to the pasture lands from June 1 to October 31 is about $11,000 (Moore 2008). By delivering recycled water to the Project area, LGVSD would not incur these costs. Napa Sanitation District (Napa SD) and Novato Sanitary District (Novato SD) have similar practices and would also avoid these operations costs if the Project were implemented.

9.3 Financial Capability Analysis

The following section presents information on the financial status of the four participating wastewater districts, provides a preliminary cost allocation of Phase 1 construction and operation costs among the United States and the districts, and describes potential ways the districts may fund and repay their respective share of costs. A final cost-sharing plan and a more thorough analysis of financial capability will be developed before a construction funding agreement with the United States is executed. It is anticipated that construction will begin in late 2009.

This section focuses on the four participating wastewater districts (LGVSD, Novato SD, SVCSD, and Napa SD), although as subsequently addressed, local potable water supply agencies may provide cost-sharing assistance, and formation of a single regional cost-sharing entity may be pursued in the future. To the extent either of these possibilities is reflected in the final cost-sharing plan, supplemental financial information will be developed.

9.3.1 Financial Status of the Districts

Table 9-6 displays selected financial data extracted from the most recent audited district financial statements, dated June 30, 2007. This information is provided for background purposes and general comparison to the costs to be incurred for Phase 1.

For all districts, the largest component of asset value is their existing capital assets, mainly the wastewater collection, treatment, and disposal systems. Capital assets range from 76 percent to 86 percent of total assets, depending on the district. All districts had recently completed capital improvements and/or had construction in progress as of June 30, 2007. The remaining asset values for all districts primarily consist of cash, cash equivalents, and investments.

Table 9-6 ***Selected Financial Parameters, by District, as of June 30, 2007***				
Item	***LGVSD***	***Novato SD***	***SVCSD***	***Napa SD***
Total Assets	$47,593,657	$140,917,038	$79,916,179	$169,473,959
--Capital Assets	$39,964,402	$106,973,161	$69,090,776	$145,408,177
Total Liabilities	$10,534,333	$32,854,805	$18,199,241	$41,976,582
--Long-Term Debt	$9,655,000	$30,152,853	$15,770,713	$39,644,965
Unrestricted Net Assets	$3,863,632	$31,022,492	$5,025,850	$9,161,483
Revenues	$5,305,423	$12,808,228	$9,666,975	$14,925,426
--Sewer Service Fees	$3,937,800	$9,573,338	$8,234,343	12,003,390
Expenses	$5,108,164	$8,724,100	$7,798,020	$14,360,596

Source: LGVSD 2007; Novato SD 2007; SVCSD 2007; Napa SD 2007b.

Long-term debt comprises between 86 and 95 percent of total liabilities. The long-term debt of LGVSD and SVCSD consists almost entirely of revenue bonds issued to develop their wastewater facilities. The long-term debt of Novato SD reflects a revolving line of credit which was drawn on to begin their Wastewater Facilities Upgrade Project; the district intends to roll this debt into a loan from the State Revolving Fund. Napa SD's largest long-term debts are 1998 Certificates of Participation and a 1993 loan from the Water Reuse Association.

As of June 30, 2007, the financial statements of all districts except Novato SD reflected unrestricted net assets between 5 percent and 8 percent of total asset value. Unrestricted net assets are those assets in excess of liabilities which can be utilized to pay for operating expenses and capital improvements. Novato SD unrestricted net assets were 22 percent of total asset value. The large percentage of unrestricted net assets for Novato SD on June 30, 2007, represented cash advances from their line of credit that were subsequently expended on the Wastewater Facilities Upgrade Project.

Customer sewer service fees represent the largest revenue source for all districts, between 74 and 85 percent. Most of the additional operating revenues for LGVSD and Novato SD were property tax receipts; SVCSD reported insignificant property tax revenues and Napa SD did not report any. Most of Napa SD's revenues aside from sewer charges were connection fees to developers. Most of SVCSD's revenues aside from sewer charges were investment earnings.

Although not separately disclosed in Table 9-6, the major operating expenses for all districts were salaries and benefits, materials and supplies, and depreciation.

9.3.2 Preliminary Cost Allocation and Federal Cost-Share

Table 9-7 displays a preliminary allocation of Phase 1 facility construction costs among the four participating wastewater districts. Each facility included in the Phase 1 cost estimate relates solely to one of the districts; therefore, there was no need to allocate costs of any single facility among the districts.

It is expected that the Federal cost-share on Phase 1 will be $25 million. In December of 2007, the U.S. House of Representatives passed the North Bay Water Reuse Program Act (HR236), and identical legislation is currently under consideration by the U.S. Senate (S1472). The legislation specifies that the authorized appropriation for Federal share of the total cost of Phase 1 shall not exceed 25 percent of the total cost or $25 million, whichever is less. Since the Project cost currently exceeds $100 million, the federal share would be $25 million.

Table 9-7 shows the federal and non-federal cost share tentatively allocated among the four wastewater agencies in proportion to their respective total project cost. The table shows each agency's preliminary portion of the Project infrastructure costs, including pump stations, storage, and pipelines. Contingencies were added based on Reclamation's cost estimating guidance. For this preliminary allocation, LGVSD would be responsible for $6.3 million, Novato SD would pay $15.9 million, SCVSD would pay $44.6 million, and Napa SD would pay $29.2 million after the federal funding share is allocated.

Table 9-8 displays the allocation of estimated annual O&M expenses among the four districts. Total O&M for each of four facility categories (distribution pipelines, pump stations storage, and WWTP treatment upgrades) was allocated to each district in the same proportion as each district's construction cost displayed in Table 9-7. In accordance with the legislation, no Federal cost-sharing is provided for O&M expenses.

Table 9-7
Summary of Construction Costs by Member Agency for Phase 1 of Alternative 1 [(1)]

Agency	*Distribution Pipelines*	*Pump Stations*	*Storage*	*WWTP Upgrades*	*Subtotal*	*Plus Allowances and Contingencies (15%+20%)*	*Total Field Cost*	*Plus Non-Contract Costs (25%)*	*Total Construction Costs*	*Less Federal Share*	*Non-Federal Share*
LGVSD	$3,274,977	$376,481	$183,100	$871,847	$4,706,000	$1,647,000	$6,353,000	$1,588,000	**$7,941,000**	$1,641,000	**$6,300,000**
Novato SD	$7,750,539	$910,844	$205,072	$3,009,840	$11,876,295	$4,157,000	$16,033,000	$4,008,000	**$20,041,000**	$4,141,000	**$15,900,000**
SVCSD	$26,447,492	$2,334,173	$4,529,655	$0	$33,311,319	$11,659,000	$44,970,000	$11,243,000	**$56,213,000**	$11,614,000	**$44,599,000**
Napa SD	$15,449,334	$1,399,230	$0	$4,962,239	$21,810,803	$7,634,000	$29,445,000	$7,361,000	**$36,806,000**	$7,605,000	**$29,201,000**
Total	$52,922,342	$5,020,728	$4,917,827	$8,843,925	$71,704,417	$25,097,000	$96,801,000	$24,200,000	**$121,000,000**	$25,000,000	**$96,000,000**

(1) Total values may not add correctly due to rounding.

Table 9-8 Summary of Local Projects for Phase 1 of Alternative 1 - Annual O&M Costs by District (May 2008)						
Agency	*Distribution Pipelines*	*Pump Stations*	*Storage*	*WWTP Upgrades*	*Total O&M Costs*	*Total O&M Costs (rounded)*
LGVSD	$20,483	$24,502	$1,154	$68,218	$114,358	***$114,000***
Novato SD	$48,475	$59,280	$1,293	$235,507	$344,555	***$345,000***
SVCSD	$165,414	$151,913	$28,553	$0	$345,880	***$346,000***
Napa SD	$96,627	$91,065	$0	$388,274	$575,966	***$576,000***
Total	$331,000	$326,759	$31,000	$692,000	$1,380,759	***$1,381,000***

9.3.3 Preliminary Non-Federal Funding Plan

A firm plan for funding the non-Federal share of Phase 1 construction costs has not yet been developed among the four wastewater districts and their potential partners. A complete, detailed financial capability analysis will be provided to Reclamation prior to construction, in advance of the federal cost share. A potential partner for sharing in costs allocated to LGVSD and Novato SD is NMWD. Costs allocated to SVCSD could be shared by SCWA, the City of Sonoma, and VOMWD. Napa SD costs may be shared by Napa County. The wastewater districts are currently working with these partners to develop a funding plan. Preliminary discussions among these entities have included the possibility of forming a single regional authority to fund and administer the project.

There are several possible funding sources being considered by the wastewater districts and potable water agencies for their nonfederal share of construction costs. Some level of cash contribution from district reserves could be made, although this would likely be a low percentage of the total required. Various state or local grants are currently being sought. In addition, loans may be taken, notably in the form of Certificates of Participation or the State Revolving Fund, which have been used by some districts for past projects. Finally, any construction funds not covered by district reserves, grants, or loans will probably be raised through issuance of revenue bonds. It is likely that the final funding plan will include some combination of the above measures.

It is expected that any debt instruments (loans and bonds) acquired to fund construction would be repaid primarily through user fees, both for wastewater service and for recycled water supply deliveries. It is possible that rates for all users in the wastewater and water agencies, not just the users receiving the recycled water supply, could be raised for debt service of this project. In addition, tax assessments could be used to retire project debt, although assessments are not now a large portion of district revenues. The annual O&M expenses for Phase 1 will probably be collected in the same manner as the annual debt service.

Willingness to Pay

Although formal resolutions to pay for their share of the construction costs will not be made by the wastewater districts and their local partners until the cost-sharing plan is finalized prior to construction, all entities support the Project. The Memorandum of Understanding (MOU) to create the Authority, the legislative collaboration on HR236 and S1472, and the local funding for the feasibility analyses are all indicative of continuing Project support by the wastewater districts and their partners.

9.4 Summary and Conclusions

The economic analysis evaluated the water supply, environmental, and indirect benefits of the Project. Water supply benefits are based on alternative costs of a non-recycling water supply for the region. Napa, Sonoma, and Marin Counties have limited water supply alternatives available to meet future water demands. The few alternatives that exist would be more expensive to implement than the Project. The economic analysis estimated that the Project would cost about $1,307 per acre-foot and would have benefits between $1,877 and $1,920 per acre-foot. The Project would also provide a water supply to the Napa Salt Marsh to help restore its tidal wetlands and would offset groundwater pumping to improve groundwater conditions in the Napa and Sonoma Valley basins. The economic analysis concludes that the Project would result in net benefits to the region.

The Authority members have not developed a firm financing plan for the Project. The federal share of funding is expected to be $25 million. Preliminary discussions have indicated Authority members would finance the local share through State and local grants, if available, and loans and revenue bonds. Loans and bonds would be repaid primarily through user fees, both for wastewater service and for recycled water supply deliveries. Through signing the MOU, completing this feasibility study, and developing an environmental impact statement/environmental impact report, the Authority members have shown a commitment in implementing the Project. A final cost-sharing plan and a more thorough analysis of financial capability will be developed before a construction funding agreement with the United States is executed.

Section 10
Environmental Considerations and Potential Effects

This section provides an overview of anticipated potential environmental effects from the North San Pablo Bay Restoration and Reuse Project (Project). Anticipated regulatory requirements and compliance measures are also discussed. As noted in Sections 8 and 9, Alternative 1 is the recommended alternative; therefore, the following discussion focuses on the impacts related to that alternative. For comparative purposes and where appropriate, a discussion of impacts related to each alternative is also provided. Detailed environmental analysis will be completed and available in the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) currently under development.

10.1 Potential Environmental Effects

Potential environmental impacts from the Project are anticipated to occur during construction and operation. Construction would involve activities such as site preparation, grading, excavation, and site restoration and would have short-term, temporary impacts. The activities, and thus the extent of impact for each alternative, would vary with the project components (e.g., treatment upgrades, pipelines, storage facilities, and pump stations). Project operation would involve supply of recycled water for urban and agricultural irrigation. A brief discussion of the nature of anticipated construction and operational impacts is provided below. Section 10.2 provides a discussion of potential impacts for each of the issue areas identified in the Reclamation Manual, Standards and Directives, Section 4.B.7, Environmental Considerations and Potential Effects (Reclamation 2008).

10.1.1 Project Construction

Project construction impacts will be consistent with those of any construction project and are anticipated to include short-term impacts to hydrology and water quality, biological resources, cultural resources, land use and agriculture, traffic and transportation, air quality, noise, utilities, and temporary access to recreational facilities. Because the proposed facilities would mostly lie on existing wastewater treatment plant (WWTP) sites (e.g., pump stations and storage facilities) or along roadways (e.g., pipelines), the impacts are anticipated to be minimal.

10.1.2 Project Operation

Project operation would include the distribution and use of recycled water for urban, agricultural, and environmental uses. The Project would be consistent with the state, regional, and local policies that encourage recycled water use. The recycled water would be treated at a level stipulated under California Code of Regulations (CCR) Title 22 requirements and will be protective of the environment and public health. Section 4.1 describes California recycled water use regulations. Overall, the Project

will increase recycled water use thereby offsetting potable water use and reducing the amount of treated wastewater released into San Pablo Bay and its tributaries.

10.2 Endangered and Threatened Species

Based on a review of California Natural Diversity Database, U.S. Fish and Wildlife Service (USFWS) species lists, relevant scientific literature, and field reconnaissance surveys, state or federally listed species are known to occur or may occur in the project area based on suitability of habitat and range of occurrence. However, field reconnaissance of proposed facilities indicates that the potential for sensitive species habitat to occur on existing treatment plant facilities or pipeline routes within existing roadways is low.

Pipeline routes that are located along potential sensitive species habitat, such as that of the clapper rail and salt marsh harvest mouse, occurring in the Napa Salt Marsh and in the Peacock Gap Golf Course area would have greater potential to directly or indirectly affect sensitive species habitat. Any impacts to California clapper rail and California black rail would be minimized by avoiding work near salt marsh habitat during the breeding season for these two species. Mitigation measures will be established to avoid or minimize direct and indirect impacts on special-status species that have the potential to occur within the project area. Impacts to the salt marsh harvest mouse would be minimized by avoidance and establishment of barriers. Direct impacts to salt marsh habitats that cannot be avoided may require restoration or compensatory mitigation.

Rare plants with the potential to occur within the project area may be found in grassland, vernal pools, woodland, coastal salt marsh, chaparral and scrub habitats. Potential impacts to special-status plant species would be minimized through pre-construction surveys to clear pipeline disturbance areas, avoidance where feasible, and restoration as appropriate. Compensatory mitigation may be required for those locations where impacts cannot be avoided.

Impacts to fish species and California freshwater shrimp would be minimized by using trenchless technology at stream crossings to avoid direct impacts to waters of the United States. Certain impacts may be minimized by restricting work on a seasonal basis. For instance, impacts to conservancy fairy shrimp and vernal pool fairy shrimp could be minimized by scheduling any project activities in the summer months when seasonal wetlands and vernal pools are dry. Impacts to state and federally listed species and locations of potential habitat will be addressed in the Biological Assessment for the proposed project, and consultation with USFWS and California Department of Fish and Game (CDFG), as appropriate.

10.2.1 Alternative 1

Implementation of Alternative 1 would include construction of 83 miles of pipeline, the majority of which would be located within existing roadways. Additionally, treatment plant upgrades of 7.0 million gallons per day of tertiary capacity, 4,553 horsepower in pump stations, and 2,598 acre-feet of storage would be implemented.

The majority of these improvements would be onsite at existing treatment plants, or at sites that have been examined in previous EIRs. Pipeline installation would include crossing of approximately 83 jurisdictional features, with pipeline installation using trenchless technology. Portions of the pipeline not occurring within existing roadways present a higher potential for impacts to special status plants, wetlands, and certain wildlife species. Approximately 10 miles of pipeline are located outside of roadways, or are located along areas considered sensitive, and may require some level of mitigation previously discussed (avoidance, minimization, scheduling, pre-construction clearance, compensation). These reaches are described below:

- Milliken-Sarco-Tulocay Creeks (MST) Service Area: A 0.7-mile portion adjacent to Napa State Hospital passes through annual grassland, seasonal wetland, ruderal and a hardwood woodland fragment. Species that have the potential to occur only in the Napa MST Service Area include giant garter snake and valley elderberry longhorn beetle.

- Carneros East Service Area: The pipeline route follows paved roads except for the crossing of the Napa River and wetlands east and west of the river.

- Napa Salt Marsh Service Area: The pipeline follows a levee for approximately 2.3 miles, with brackish marsh on both sides of the levee. Adjacent habitat has the potential to support California black rail, California clapper rail, western snowy plover, and salt marsh harvest mouse.

- Existing Sonoma Valley County Sanitation District reuse area: The pipeline route follows railroad tracks for the majority of the route, and crosses agricultural land for a portion.

- North Marin Water District Urban Recycled Water Project Service Area: A 0.6-mile portion follows railroad tracks; 2.2 miles are off-road through agricultural fields; a 280-foot section follows a paved path through oak woodland with scattered oaks and an understory of annual grasses; and a 0.9-mile portion is off-road, 0.75 miles of which crosses freshwater and brackish marsh, until it ends at the Petaluma River. This portion of the pipeline has nine stream crossings.

- Sonoma Valley Recycled Water Project: An approximately one-mile portion of the route is off-road and is situated within riparian corridor of Arroyo Seco. An approximately two-mile portion is off-road and crosses annual grassland and agricultural fields as well as three streams. This portion of the pipeline has 24 stream crossings.

- Southern Sonoma Valley Service Area: The route follows a paved road and runs parallel to Champlin Creek.

10.2.2 Alternative 2

Alternative 2 would include construction of 140 miles of pipeline, as well as treatment, pumping and storage improvements on or adjacent to treatment facilities. Pipeline installation would include approximately 49 additional jurisdictional features compared to Alternative 1, for a total of 132 crossings. Pipeline installation would use trenchless technology to avoid or minimize impacts to jurisdictional features and sensitive habitat. Portions of the pipeline not occurring within existing roadways present a higher potential for impacts to special status plants, wetlands and certain wildlife species. Compared to Alternative 1, Alternative 2 has approximately 7 additional miles of pipeline that are located outside of existing roadways or adjacent to areas considered sensitive. Therefore, Alternative 2 has approximately 17 miles of pipeline that may require some level of mitigation previously discussed (avoidance, minimization, scheduling, pre-construction clearance, compensation). These reaches are described below:

- Peacock Gap Service Area: A portion of the pipeline gap pipeline runs through China Camp State Park along North San Pablo Avenue. Salt marsh adjacent to this portion of the route has the potential for salt marsh harvest mouse, California black rail, and California clapper rail to occur.

- Novato Service Area: A 1.5-mile portion of the pipeline follows a path/levee with freshwater wetlands on both sides. Another section of the route follows a levee for three miles and is adjacent to water treatment ponds, and salt marsh habitat (for a portion of these three miles) with the potential for California black rail, California clapper rail and salt marsh harvest mouse to occur. A 0.3-mile section passes off-road through ruderal and annual grassland habitat; and a 0.5-mile section runs adjacent to a pond within Beverly Ehreth Ecological Reserve and through a patch of scattered oaks with an understory of annual grasses.

- Sears Point Service Area: The majority of the pipeline route follows paved roads with agriculture (predominately grazed) being the dominant adjacent habitat. There are two off-road portions of the route: a 1-mile portion of it is also off-road and crosses Petaluma River as well as the associated brackish marsh habitat north of the river, and 0.8 miles of the route follows railroad tracks with crop fields adjacent.

- Southern Sonoma Valley Service Area: The majority of the pipeline follows paved roads while the off-road portion is approximately 1.1 miles in length and runs adjacent to a row of eucalyptus, several vineyards, and an oak woodland patch.

10.2.3 Alternative 3

Alternative 3 would include the 140 miles of pipeline described in Alternative 2 as well as an additional 15 miles of pipeline, for a total of 155 miles of pipeline. Treatment, pumping, and storage improvements would also be implemented at treatment facilities. Pipeline installation would include crossing of approximately 21 additional jurisdictional features compared to Alternative 2, for a total of 153

crossings. Pipeline installation would use trenchless technology to avoid or minimize impacts to jurisdictional features and sensitive habitat. Portions of the pipeline not occurring within existing roadways present a higher potential for impacts to special status plants, wetlands and certain wildlife species. Compared to Alternative 2, Alternative 3 has approximately 6 additional miles of pipeline that are located outside of existing roadways or are adjacent to areas considered sensitive. Therefore, Alternative 3 has approximately 23 miles of pipeline that may require some level of mitigation previously discussed (avoidance, minimization, scheduling, pre-construction clearance, compensation). These reaches are described below:

- Carneros East Service Area: Includes 1.7 miles of pipeline that are off-road. As currently mapped, this portion is situated within the riparian corridor of Suscol Creek and adjacent habitat outside of the riparian habitat is annual grassland.

- Sears Point Service Area: A 1.1-mile portion follows railroad tracks through agricultural fields while the remaining 1.5-mile portion follows paved road adjacent to the Napa-Sonoma marshes, which have the potential to support special status rail species and salt marsh harvest mouse.

- Central Sonoma Valley Service Area: Within Central Sonoma Valley's western portion of the Project pipelines, a portion approximately one mile in length is off-road and crosses through an annual grassland. Within Central Sonoma Valley's eastern portion of the pipeline approximately one mile is off-road through dense mixed hardwood woodland.

10.3 Public Health and Safety

Project construction would increase vehicular and truck traffic in the project area. Short-term air emissions and increase in noise levels would occur in and around the construction corridors. Construction activities would involve use of hazardous materials during construction; however implementation of best management practices (BMPs) related to fueling, vehicle washing and handling, use, and storage of chemicals would minimize any risk to either workers or the public. Project implementation would incrementally increase the use of chemicals commonly used the treatment of wastewater. All treatment chemicals would be handled and stored in compliance with federal, state and local requirements.

As noted in Section 4.1 and 4.3, the use of recycled water is highly regulated in California by CCR Title 22. Project operation would include distribution and use of recycled water for urban, agricultural, and environmental uses. The project would be consistent with the state, regional, and local policies that encourage recycled water use. The recycled water would be treated at a level stipulated under Title 22 requirements and will be protective of the environment and public health.

10.4 Regulated Waters

Based on database review and field reconnaissance surveys, pipelines would cross jurisdictional stream features and would occur adjacent to potentially

jurisdictional agricultural ponds, freshwater marshes, seasonal wetlands and brackish marshes. As previously noted in Section 10.2, Alternative 1 is anticipated to cross 83 jurisdictional features; Alternative 2 is anticipated to cross an additional 49 jurisdictional features, for a total of 132 crossings; and Alternative 3 is anticipated to cross an additional 21 jurisdictional features, for a total of 153 crossings.

It is anticipated that stream crossings would use trenchless technology to avoid direct impacts to waters of the United States.; therefore, it is anticipated that these impacts would be largely avoided or minimized. By constraining work to the right-of-way of existing roadways, whenever possible, most wetland and pond features would be avoided. Depending on the methods used, pipeline crossings of streams and wetlands may be subject to the Clean Water Act, including the acquisition of appropriate US Army Corps of Engineers and Regional Water Quality Control Board permits, and USFWS consultation as appropriate. Additionally, permits will be required by CDFG for all stream crossings, regardless of crossing method.

10.5 Cultural Resources

Based on previous survey efforts, initial current field reconnaissance, and a database review at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University, 142 cultural resources are known to occur in within the Area of Sensitivity Assessment (ASA) for Alternatives 1, 2, and 3 of the project. The ASA includes the Areas of Direct Impact (pipeline segments and other areas of ground-disturbance) with an additional 500 feet from pipeline centerline or treatment plant fenceline. The ASA is useful for determining areas of archaeological sensitivity within the project area. The Area of Potential Effect (APE) will be used for impact analysis, and includes all areas of ground-disturbing activity within 25 feet from centerline to account for potential staging areas and spoil piles.

Cultural resources in the ASA are comprised of prehistoric archaeological sites (including but not limited to concentrations of obsidian and chert flaked-stone tools [e.g., projectile points, knives, scrapers] or toolmaking debris; culturally darkened soil ["midden"] containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment [e.g., mortars, pestles, handstones, or milling slabs]; and battered stone tools, such as hammerstones and pitted stones), historic-period archaeological resources (including but not limited to stone walls; filled wells or privies; deposits of metal, glass, and/or ceramic refuse; and out-of-use transportation features such as railroad berms and roads), and historic-period architectural/structural properties (standing structures, bridges, and in-use railroads or other transportation features). In general, the nature of this project will not have an adverse impact on architectural resources with the exception of some structural features such as bridges. Structural properties such as bridges will be addressed appropriately. A clear statement for no adverse impact to architectural properties that exist adjacent to the project alignment will be included in the EIS. A Phase I Cultural Resources Report will be prepared to support Section 106 Consultation. For comparison purposes, a breakdown of the number of sites identified within the ASA, which provides 500 foot buffer, is provided

below. It should be noted that the potential for Project facilities to directly impact the majority of these sites is considered low.

10.5.1 Alternative 1

Forty-eight cultural resources have been recorded within the ASA for Alternative 1. Twenty-one of these resources are located within the APE. These resources include ten prehistoric sites (lithic concentrations, shellmounds, and a basalt quarry), two historic-period artifact deposits, a stone-lined ditch, a railroad, two historic-period railroad grades, a stone wall, and four small stream-crossing bridges.

10.5.2 Alternative 2

An additional 67 cultural resources have been recorded within the ASA for Alternative 2 compared to Alternative 1, resulting in a total of 115 sites within the Alternative 2 ASA. These resources have not yet been quantified, but include both prehistoric and historic-period archaeological sites as well as architectural/structural properties. It appears that 28 of these resources were recorded within the APE for Alternative 2 (exact locations have not yet been verified). These resources include prehistoric shellmounds and lithic concentrations some with burials, bedrock milling stations, two bridges, a historic-period railroad, and a dam.

10.5.3 Alternative 3

An additional 27 cultural resources have been recorded within the ASA for Alternative 3 when compared to Alternative 2**,** resulting in a total of 142 sites within the Alternative 3 ASA. These resources have not yet been quantified, but include both prehistoric and historic-period archaeological sites as well as architectural/structural properties. Eleven of these resources have been recorded within proximity of the APE for Alternative 3 (exact locations have not yet been verified). Resource types include shellmounds, lithic scatters, and bedrock milling stations; a stone wall; a foundation and dam; and a historic-period railroad grade.

Avoidance of existing cultural resource sites would be the first strategy in Project implementation. The Project is not anticipated to affect historic properties given the likely locations of Project facilities (existing WWTP sites for facilities and roadway rights-of-way for pipelines); however, Project construction activities such as excavation may cause inadvertent discovery of unknown or unrecorded cultural resources. In the event of such accidental discovery, the Project will comply with applicable regulations and implement mitigation measures such as stopping work, creating a buffer area around the discovery, and contacting an archaeologist or a cultural resource expert.

10.6 Significant Environmental Effects

It is anticipated that potentially significant environmental effects will be identified for all of the alternatives identified, primarily relating to construction impacts associated with facility installation. Issue areas where significant short term impacts and corresponding mitigation relating to construction are anticipated include: geology

and soils, water resources, cultural resources, biological resources, land use, aesthetics, traffic, hazardous materials, noise, public services and utilities. It is also anticipated that mitigation measures, including avoidance, minimization, implementation of BMPs, are available to reduce these potentially significant environmental effects to a less than significant level.

Long-term operational impacts will relate to the long-term treatment, distribution, and use of recycled water for irrigation within the service area. These impacts would include increased pumping and corresponding electrical demand for distribution, and increased chemical use at WWTPs for treatment. Additional potential impacts to surface and groundwater quality due to salt loading could also be related to project implementation; however, as noted in Section 4.3, water quality has been reviewed and is appropriate for agricultural uses.

10.7 Unique or Undefined Environmental Risks

Unique or undefined environmental risks of the Project include the potential for spread of pathogens that infect woody plants, during the course of construction of pipeline routes. This is common to all construction projects that are located within areas currently infested with these types of pathogens, which include Phytophthora cinnamomi and Sudden Oak Death. The pipeline route within the Peacock Gap Golf Course Area, for Alternative 2, includes 6.6 miles of pipeline. A portion of the pipeline runs through China Camp State Park along North San Pablo Avenue. The pipeline route crosses through China Camp along a dirt road through mixed hardwood habitat, dominated by coast live oak, madrone, toyon (*Heteromeles arbutifolia*), bay (*Umbellularia californica*) and mazanita (*Arctostaphylos* sp.). Habitat adjacent to this portion of the pipeline is currently infested with *Phytophthora cinnamomi*, a soil-borne fungal pathogen that infects woody plants. Steps will need to be taken to minimize the projects contribution to the spread of this pathogen.

10.8 Status of Compliance Measures or Other Available Information

A combined EIS/EIR is being prepared to comply with the California Environmental Quality Act and the National Environmental Policy Act. It is anticipated that the Project would be required to comply with Sections 401 and 404 of the Clean Water Act for potential discharges to the waters of the U.S., California Department of Health recycled water requirements (Title 22), Section 7 of the Endangered Species Act, Section 106 of the National Historic Preservation Act, the National Pollutant Discharge Elimination System requirements, and the CDFG Code. Encroachment permits will also be obtained from local and state agencies as applicable. Other regulatory requirements are discussed in Section 7.4.

Two EIR/EIS documents were previously prepared for components of the Project: the 2003 Napa River Salt Marsh Restoration Project EIR/EIS and the 2006 Sonoma Valley Recycled Water Project EIR. These will be incorporated by reference in the Project's EIR/EIS.

10.9 Regional Water Supply and Water Quality

In terms of hydrology, water quality, and hazardous materials impacts, implementation of BMPs would minimize any potential impacts to receiving waters and groundwater. Typical BMPs include scheduling or limiting activities to certain times of the year based on hydrologic considerations, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction in good condition.

The Project would provide an increased recycled water supply to urban, agricultural, and environmental uses in the study area. The recycled water would increase the reliability of supplies for both urban landscaping irrigation and agricultural irrigation. This reliable water supply would alleviate concerns that surround the potential of future drought conditions. During times of drought, or as area population increases, use of recycled water for irrigation of landscape and crops would help reduce demand on existing potable water supplies and save that potable water for municipal users.

As described in Section 7.3, the Project would reduce treated wastewater discharge into the San Pablo Bay and its tributaries. The recycled water produced by the member agencies will meet Title 22 standards for unrestricted use. Sections 4.1 and 7.4 discuss some of the regulatory requirements currently in place for managing the design and operation of recycled water systems in order to safeguard the health and safety of the public and environment. The environmental analysis of alternatives in the EIS/EIR will analyze these impacts in more detail and will include recommended mitigation measures, as necessary.

10.10 Public Involvement

As described in Section 1.5.3, the member agencies initiated public outreach efforts during early phases of the feasibility study report process to collect grower and end user information at a broad scale within each member agencies' service area. Outreach meetings were conducted which identified potential Project participants, discussed grower concerns and needs, reviewed land use mapping for accuracy, and discussed projected future changes in the agricultural industry within each service area. The outreach efforts are developing agricultural reuse contacts and working towards securing commitments to use recycled water. As Project activities carry on, potential users will continue to be invited to periodically attend Authority meetings and review information distributed by the Authority. Recent public outreach efforts include a series of stakeholder meetings to introduce the Project to the interested stakeholders, and development of the Authority's Project website, to provide information to public on the Authority and the status of the Title XVI feasibility study process. An additional round of public outreach meetings will occur during the scoping phase of the EIS/EIR development.

10.11 Historical Properties

Because the alignments would be placed underground mostly along existing roads, no buildings or structures are anticipated to be affected by proposed Project facilities, directly or indirectly. Proposed improvements at treatment plants, including treatment and pump stations, are not anticipated to affect historical properties. However, recycled pipeline construction within the City of Sonoma has the potential to affect historical resources within the City Center. The APEs for individual facilities associated with the pipeline (e.g., operational storage reservoir, capacity storage reservoir, booster pump station, and distribution pump station) would be limited to the physical effects of the construction. Any auditory or visual impacts posed by facilities to historic properties will be assessed on a site-by-site basis as part of the Cultural Resources Phase I Report.

Section 11
Research Needs

The North San Pablo Bay Restoration and Reuse Project (Project) will not require additional research to proceed with planning, design, construction, and implementation. The Project will use proven tertiary treatment technologies and conventional system components, which are in use for other recycled water projects in California and the United States.

Section 12
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