

Subregional Long-Term Wastewater Project

# **INTRODUCTION AND SUMMARY TO THE DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT**

**City of Santa Rosa  
and  
U.S. Army Corps of Engineers**

***Cooperating Agencies:***  
Bureau of Land Management  
National Oceanic Atmospheric Administration

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# 1 INTRODUCTION AND SUMMARY

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# 1 INTRODUCTION AND SUMMARY

The project proponent, the City of Santa Rosa (managing partner of the Santa Rosa Subregional Wastewater Reclamation System), proposes to implement a Long-Term Wastewater Project. Prior to this action, the City of Santa Rosa must identify and document the potential environmental impacts of the project in accordance with the California Environmental Quality Act and the National Environmental Policy Act. The Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) has been prepared by a team of environmental consultants managed by Harland Bartholomew & Associates (HBA) under the direction of the City of Santa Rosa and the U.S. Army Corps of Engineers (Corps).

*This Introduction and Summary serves both as a stand-alone summary and as Chapter 1 of the Draft EIR/EIS for the Santa Rosa Subregional Long-Term Wastewater Project.*

*Although this Introduction and Summary is made available separately from the main document, in no way does it substitute for the Draft EIR/EIS which addresses each issue in much greater detail.*

*Copies of the Draft EIR/EIS are available for review or purchase; please see page 1-9 for specific information.*

**Figure 1-1.** The Subregional Wastewater Reclamation System consists of five member agencies.

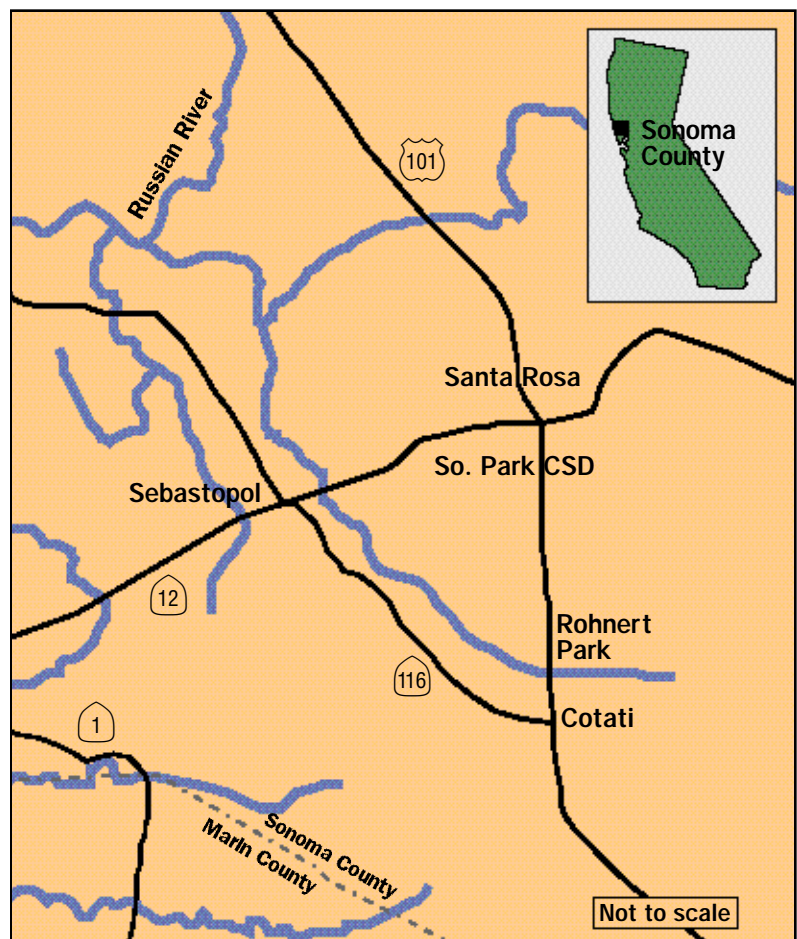
## 1.1 PURPOSE AND NEED

The City of Santa Rosa has adopted the following statement of Purpose and Need for the project.

### Need for the Project

The North Coast Regional Water Quality Control Board requires that, by 1999, the Santa Rosa Subregional Wastewater Reclamation System (Subregional System) must put in place a reclaimed water disposal solution that meets the Board's reliability requirements and existing and future capacity needs, no matter what weather conditions occur. The Santa Rosa Subregional Long-Term Wastewater Project (the Project) is intended to meet this requirement.

The volume of water the Project must accommodate is based upon a number of factors including the buildout of the



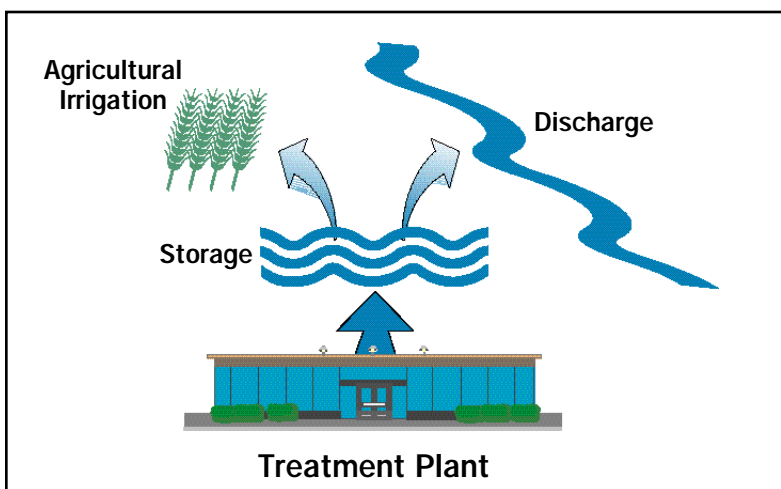
General Plans (current as of April, 1994) of the Subregional members through approximately the year 2010. The Project includes expansion of head-works capacity (capability for pumping sewage from the plant intakes to the treatment facilities) at the Laguna Plant as well as disposal of reclaimed water.

### **Current Wastewater Management System**

The Laguna Plant is part of the Subregional System and provides tertiary treatment of wastewater collected from the cities of Santa Rosa, Rohnert Park, Cotati, and Sebastopol, and from the South Park County Sanitation District (Subregional members) (see Figure 1-1). The Laguna Plant also treats septic waste from most of Sonoma County. The Laguna Plant is currently permitted by the Regional Water Quality Control Board to treat 18 million gallons per day (average dry weather flow).

**Figure 1-2.** Primary disposal methods for reclaimed water are agricultural irrigation and discharge to the Laguna de Santa Rosa during the discharge season.

The Subregional System currently uses a combination of reuse and discharge for disposal of the reclaimed water (see Figure 1-2). A distribution system carries reclaimed water from the Laguna Plant



to be used for golf course irrigation, urban landscape irrigation, and agricultural irrigation on about 5,500 acres of land located primarily in the Santa Rosa Plain.

A portion of the reclaimed water is also used for the management of a small created wetland area; a second wetland area is under construction. The Subregional System is supported by storage facilities which hold approximately 1,500 million gallons (MG) of reclaimed water until it can be reused or discharged. During the October 1–May 14 discharge season, reclaimed water from the Laguna Plant that is not used for irrigation is discharged to the Laguna de Santa Rosa and Santa Rosa Creek, which flow into the Russian River approximately 10 miles north of the Laguna Plant.

### **The Problem**

The existing facilities of the Subregional System are not capable of reliably disposing of current reclaimed water flows in accordance with its Regional Water Quality Control Board permit under all weather conditions. Ordinarily, the permitted discharge is limited to a maximum of one percent of Russian River flow. With the permission of the Regional Water Quality Control Board, discharge can temporarily increase to five percent. Storage is provided to hold reclaimed water so that the maximum permitted discharge is normally not exceeded. However, due to a combination of weather conditions which may occur during the discharge season, discharge to the Russian River currently has the potential to exceed the permitted maximum, which, in fact, did occur in 1985 and 1986. These conditions, although

infrequent, occur during winters characterized by periodic light rain, but overall drier-than-normal conditions when river flow remains low. As a result, the Subregional System could be forced to discharge at rates higher than allowable under these conditions, leaving the System without a reliable, legally sanctioned, disposal option.

The Project is intended to provide for reliable disposal of existing reclaimed water flows and the increased volume expected at buildout of the General Plans (in effect at the outset of this analysis in April, 1994) of the communities making up the Subregional System approximately through the year 2010. With implementation of current water conservation programs, reclaimed water flows through the Laguna Plant are projected to increase to about 21 million gallons per day average dry weather flow at buildout.

After reductions due to water conservation, the annual average reclaimed water generation is projected to be about 8,220 MG. This would be an increase of 17 percent over the annual average flow in 1994 of 7,000 MG. The existing reliable capacity for disposal is actually much lower, at about 3,800 MG per year. Therefore, this Project must reliably dispose of 3,200 MG to accommodate 1994 flows and 4,420 MG to meet existing demand plus General Plan buildout flows. The City currently requests an exception to its Russian River discharge permit almost every year, allowing a maximum of five percent River discharge instead of the standard permitted level of one percent.

## Project Objectives

The Santa Rosa Board of Public Utilities (BPU), as the governing body of the Subregional System, adopted the following Project objectives on December 16, 1993. The Santa Rosa City Council reviewed these Project objectives on December 28, 1993, and the BPU reaffirmed them on May 27, 1994.

### **Overall Project objectives:**

- Provide wastewater treatment and disposal for the Santa Rosa Subregional Wastewater System to accommodate projected growth as indicated in the currently adopted General Plans of each of the Subregional entities;
- Develop and operate the wastewater treatment and disposal system in ways that protect public health and safety and promote wise use of water resources.

### **Supporting Project objectives:**

The supporting objectives are intended to further define the overall Project objectives and to provide guidance in the development and evaluation of Project alternatives.

- Maximize reclamation, recycling, and reuse of advanced treated wastewater to the greatest extent feasible;
- Reclaimed water that is not reused will be recycled or disposed of in a manner that protects beneficial uses of receiving waters;
- Optimize water resource conservation where practical;
- Operate the wastewater treatment plant and disposal system successfully under all foreseeable weather conditions;
- Satisfy applicable regulatory agency and institutional guidelines and requirements;
- Develop a disposal system that is manageable and reliable;
- Develop a program that can be successfully financed and is economically feasible.

## Purpose of the Project

The Project objectives provide guidance for achieving the Project purpose: annual disposal of 8,220 MG of reclaimed water in a reliable, practicable manner that provides the best use of water resources, while protecting public health and the environment. Thus, the City's purpose for the Project is not only to dispose of reclaimed water, but to do so in a manner that maximizes reclamation, recycling, and reuse and optimizes water conservation. Although the need for the Project is driven by reclaimed water disposal requirements, Project elements that provide conservation, reuse, or recycling of water resources are necessary to serve the overall purpose and need of the Project.

The City's purpose in maximizing water reclamation, recycling, and reuse is consistent with the State of California's Water Recycling Act of 1991 (California Water Code, Division 7, Water Quality, Chapters 1–10; California Porter-Cologne Water Quality Act, sections 13576 and 13577). Thus, an important purpose of the Project is to benefit agriculture, greenbelts, and recreation and to protect and enhance fisheries, wildlife habitat, and riparian areas through provision of reclaimed water, an acknowledged valuable resource. The combined purposes of achieving reliable reclaimed water disposal while maximizing water reclamation and recycling and optimizing conservation have determined the Project alternatives under consideration.

## 1.2 ENVIRONMENTAL REGULATION

This is the introduction and summary of a Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) on the Project. The Draft EIR/EIS serves as a joint document to meet environmental review requirements of the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). Because this document reflects both federal and state regulations, it is referred to as an EIR/EIS.

### National Environmental Policy Act

The EIR/EIS serves as an Environmental Impact Statement (EIS) under NEPA for federal agencies that will need to issue permits. The U.S. Army Corps of Engineers is the federal lead agency under NEPA because most of the alternatives being considered require a Corps permit. As Cooperating Agencies, the National Oceanic and Atmospheric Administration (NOAA) and the Bureau of Land Management (BLM) will also use the document. NOAA is an agency with “special expertise” regarding the Project; it will use the EIS to assess impacts to the Gulf of the Farallones National Marine Sanctuary and make a recommendation to the Corps regarding the City’s Section 404 permit application. BLM has “jurisdiction by law” over portions of the Project and will use the EIS to consider environmental impacts which could result due to approval of Geothermal Sundry Permits and granting of Rights-of-Way for geothermal injection wells, pipelines, and roads.

The EIS is prepared in accordance with NEPA and Council on Environmental Quality Regulations 40 CFR 1500 et seq. and Corps NEPA Implementation Procedures for the Regulatory Program (33 CFR 325, Appendix B). The purpose of the EIS is to:

- Assess all reasonable alternatives;
- Provide a full discussion of significant environmental impacts of the alternatives; and
- Inform the decision-makers and public of project alternatives that will avoid or minimize adverse impacts or actually enhance the quality of the environment.

The Draft EIS considers five alternatives at an equal level of analysis. After impacts for the alternatives have been evaluated and disclosed in the Draft EIS, the applicant (City) will select a preferred Project. A Final EIS will then be prepared that will present the City’s preferred alternative with the other alternatives. The Final EIS is for use by federal agencies, in conjunction with other relevant information, in their decision whether to approve or deny a permit for the alternative selected by the City.

### California Environmental Quality Act

The EIR/EIS also serves as an Environmental Impact Report (EIR) for state and local agencies that will need to issue permits. The City is the CEQA lead agency. The document is prepared in accordance with CEQA and the CEQA Guidelines (California Administrative

Code Section 15000 et seq.). An EIR, as described by the CEQA Guidelines, is a detailed statement prepared to describe and analyze significant effects of a project and discuss ways to avoid or mitigate the effects.

Although the lead agency must consider the information in the EIR, the document's conclusions do not control the lead agency's authority to approve or disapprove a project. A lead agency may approve a project despite its significant adverse impacts if that agency issues two sets of findings. The first set must specifically state how the lead agency has responded to the significant effects identified in the EIR. Secondly, the agency must prepare a "statement of overriding considerations" which sets forth the specific reasons the agency has approved the project despite significant

environmental effects. After the City, as lead agency, has certified the EIR and issued the proper findings (if required), the City will select a preferred project.

## Other Participating Agencies

Many other agencies have discretionary authority to approve part or all of the Project and will rely on the City and the Corps to produce an EIR/EIS adequate for their needs. In addition, the City and the Corps must confer with other interested public agencies which do not have approval authority over the Project, but which have specific expertise with regard to the Project or have responsibility for resources affected by the Project.

Figure 1-3 shows the relationship among various agencies. Figure 1-4 shows the timeline of the EIR/EIS.



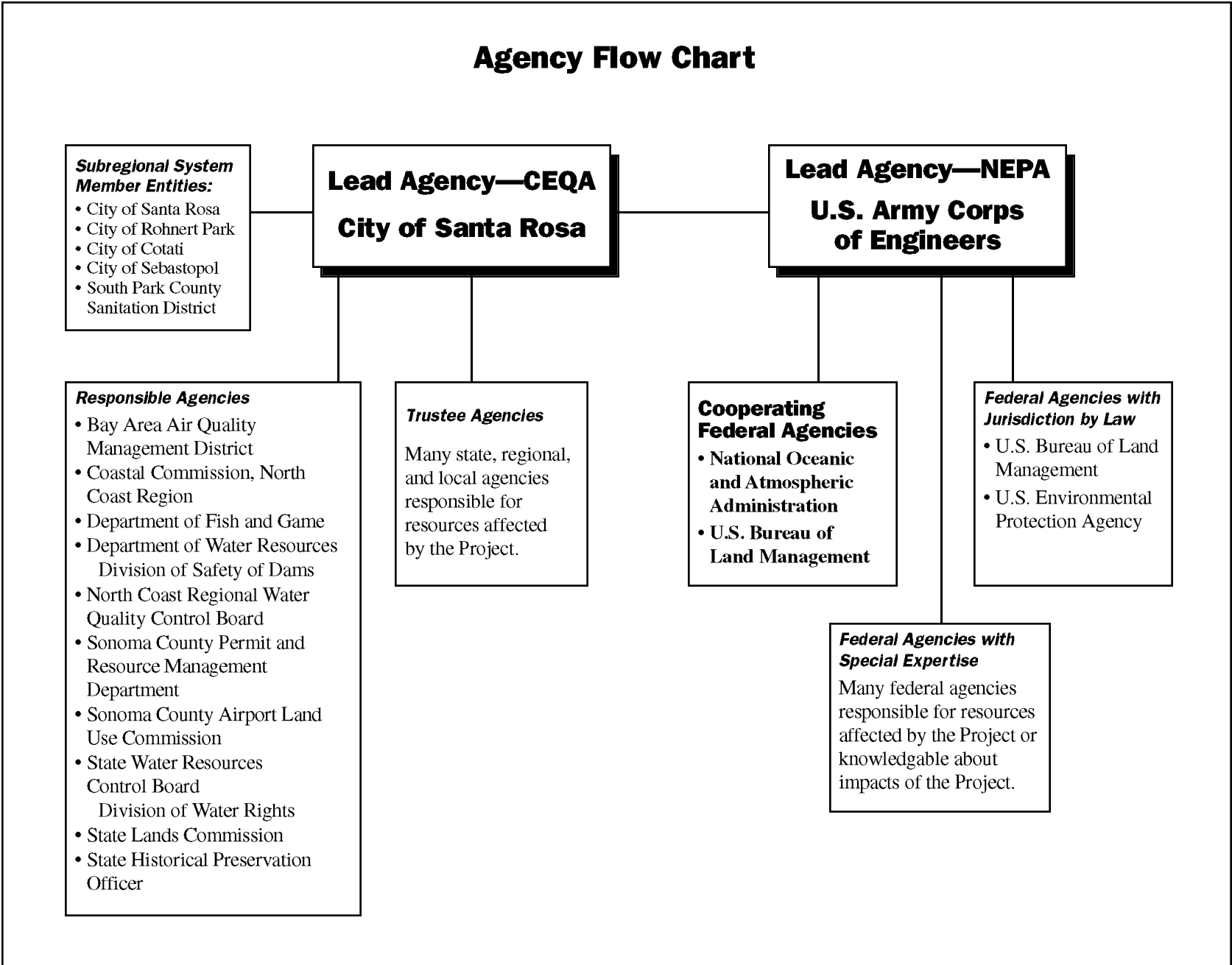


Figure 1-3.

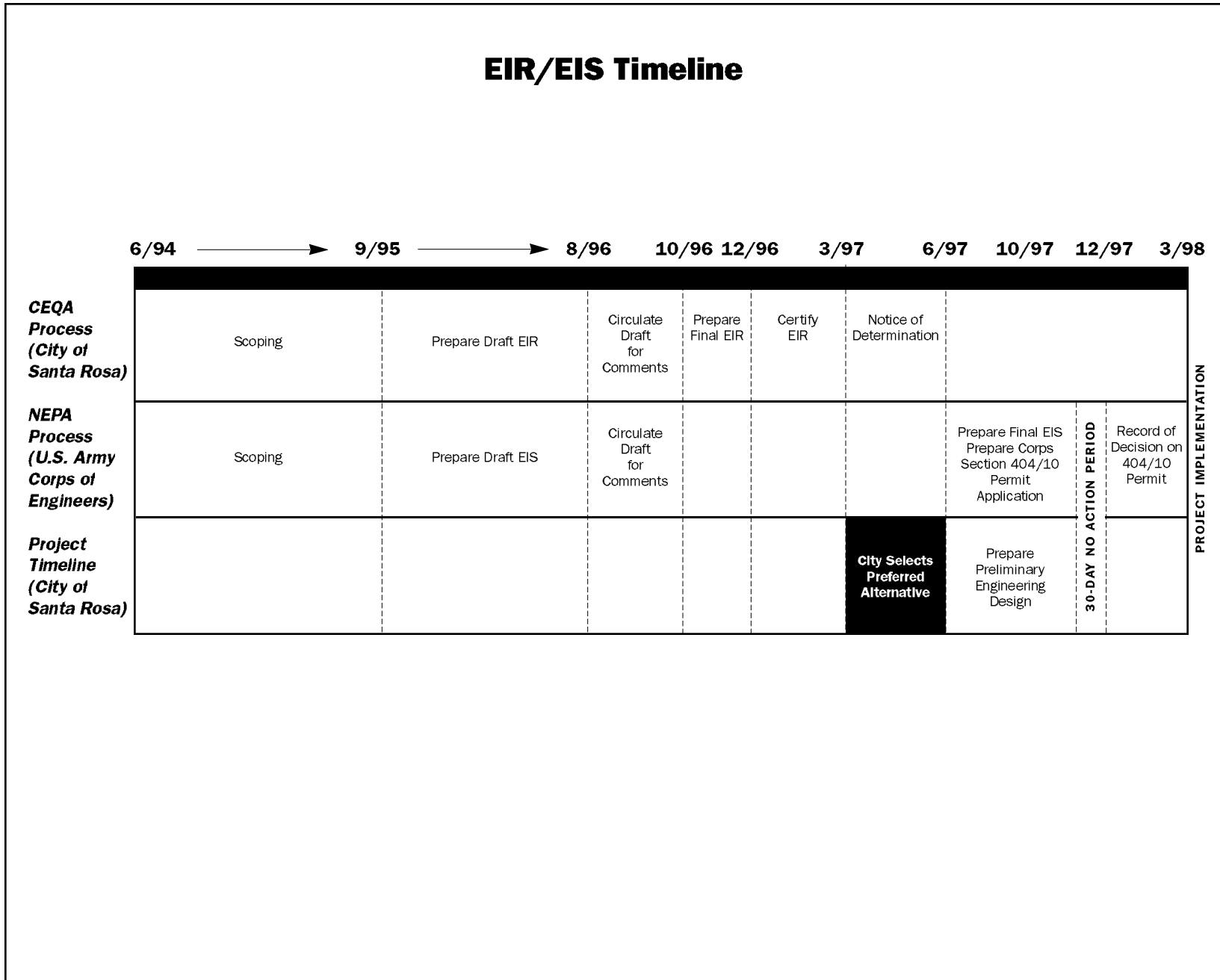


Figure 1-4.

### 1.3 AVAILABILITY OF THE DRAFT EIR/EIS AND THE PUBLIC COMMENT PERIOD

The Draft EIR/EIS will be circulated for a minimum of 60 days to allow public agencies and interested individuals to review and comment on the document. A joint public hearing on the Draft EIR/EIS will be held by the Board of Public Utilities, the City Council, and the U.S. Army Corps of Engineers in Santa Rosa on Tuesday, September 24, 1996. Written comments will be accepted by the City until 4:30 p.m. on Monday, October 7, 1996. Public agencies and interested individuals are encouraged to submit comments on the Draft EIR/EIS for consideration and inclusion in the Final EIR. By agreement of the NEPA and CEQA lead agencies, all written comments on the Draft EIR/EIS should be sent to:

Marie Meredith  
City of Santa Rosa  
Community Development Department  
P.O. Box 1678  
Santa Rosa, CA 95402-1678  
(707) 543-3181

Office hours: 8:30 a.m.–noon,  
1:00–4:30 p.m., Monday–Friday.

To facilitate a clear understanding of the comments, please provide a separate sentence or paragraph for each comment and note the page and chapter of the document to which the comment is directed. This approach to commenting

on the document will help facilitate the response to comments and preparation of the Final EIR.

Because the Draft EIR/EIS, including the appendices, is so lengthy, it has been published on CD ROM in addition to the normal printed hard copy. The document may be purchased in either printed form or CD ROM (Mac or PC formats) from the Department of Community Development at the previously listed address.

The Draft EIR/EIS, appendices, and reference material are available for review at the Laguna Wastewater Treatment Plant Library. The Draft EIR/EIS and appendices will also be available for review at the libraries listed on the next page. Some libraries have the facilities to view the document on CD ROM. Libraries will have a printed copy of the document. The Central Branch of the Sonoma County Library in Santa Rosa has copies of federal and state legislation and regulatory codes referenced in this Draft EIR/EIS.

### Final EIR

At the end of the public review period, written responses will be prepared for written comments received during the circulation period and comments made during the public hearing. The comments and responses will then be included in the Final EIR and will be considered by the City prior to certification of the EIR.

## Locations for Reviewing Draft EIR/EIS

### *Printed copy, CD ROM, and references:*

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Laguna Wastewater Treatment Plant  
4300 Llano Road  
Santa Rosa  
(707) 543-3350

### *Printed copy and CD ROM:*

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Central Branch,  
Sonoma County Library  
Third and E Streets  
Santa Rosa

Rincon Valley Branch,  
Sonoma County Library  
6959 Montecito Blvd.  
Santa Rosa

Civic Center Branch,  
Marin County Library  
3501 Civic Center Dr.  
San Rafael

Ruben Salazar Library  
Sonoma State University  
1801 East Cotati Avenue  
Rohnert Park

### *Printed copy:*

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U.S. Army Corps  
of Engineers  
San Francisco District  
Regulatory Branch  
333 Market Street  
San Francisco

Novato Library  
1720 Novato Blvd.  
Novato

Occidental Library  
73 Main Street  
Occidental

Forestville Library  
107 First Street  
Forestville

Petaluma Library  
100 Fairground Drive  
Petaluma

Guerneville Library  
4107 Armstrong Woods Rd.  
Guerneville

Point Reyes Station  
Library  
Point Reyes Station

Healdsburg Library  
139 Piper  
Healdsburg

Rohnert Park-  
Cotati Library  
6600 Hunter Drive  
Rohnert Park

Monte Rio Library  
20466 Highway 116  
Monte Rio

Sebastopol Library  
7140 Bodega Avenue  
Sebastopol

Northwest Branch,  
Sonoma County Library  
150 Coddington Center  
Santa Rosa

## 1.4 PROJECT BACKGROUND

The following is a chronology of significant events that have led to the current status of the Subregional System and its need for the Project.

*Prior to 1985:* In the early 1970's, the City built one of the first water reclamation and reuse systems in the world. Reclaimed water was produced through secondary treatment, and the system started with 1,500 acres of agricultural irrigation. During the 1970's and 1980's Santa Rosa and its Subregional member partners experienced rapid growth. This growth, combined with increasingly stringent regulations on wastewater and unusual weather conditions, made the system vulnerable to failure.

*February of 1985:* A storm caused a sudden inflow into the collection system, resulting in spilling of about one million gallons of untreated sewage from a manhole near Llano Road prior to reaching the Laguna Plant.

*March 1985 and January 1986:* Dry weather caused low-flow conditions in the Russian River, preventing release of reclaimed water and causing the holding ponds to fill to capacity. Two planned and coordinated, though illegal, releases of reclaimed water were conducted to reduce strain on the system. The releases exceeded the 1% of river flow allowed in the City's permit. The 1985 release discharged reclaimed water up to 10% of the river flow; the 1986 release, up to 5% of river flow.

*Spring 1985:* Responding to the 1985 spill and planned discharge, the North

Coast Regional Water Quality Control Board fined the City \$50,000 and issued a cease-and-desist order. The Board required the City to develop a long-term project that would prevent such releases in the future.

*Spring 1986:* The Board adopted exception criteria which allowed discharges of up to 5% of river flow during dry winters, but required continued expansion of the irrigation system to compensate for growth.

*Fall 1986:* The City was challenged in court on the adequacy of the first EIR prepared on an ocean discharge project. Although the lawsuit was settled, the City ultimately decided not to use the EIR or the project it analyzed as a basis for implementing a solution.

*December 1988:* The Laguna Plant expanded its capacity to 18 million gallons per day and was upgraded to an advanced treatment (tertiary) level.

*1990:* The Board of Public Utilities (BPU) directed the City staff to proceed with an EIR on a West County Reclamation Alternative, which would expand the existing reuse system into western Sonoma County.

*1991:* An EIR/EIS was certified and the West County Reclamation project was selected. The City was sued on the adequacy of the document, and it was eventually held to be inadequate.

*1992:* The California Department of Health Services rescinded its guidelines for the discharge of tertiary-treated reclaimed water into drinking water

sources, thus increasing the number of potential solutions to the reclaimed water disposal problem.

*1993:* Rather than correct the inadequacies the court found in its previous EIR/EIS, the City initiated a completely new planning and environmental evaluation process. That decision led to the current EIR/EIS and the subsequent decision to analyze a range of options and give equal consideration to each.

## Scoping Phase and Environmental Study Phase

The tasks associated with each step were:

### Step I-Scoping Phase

- Delineation of the reclaimed water disposal problem;
- Identification of potential alternatives and alternative components;
- Screening and selection of alternatives to be evaluated in the Environmental Impact Report/Environmental Impact Statement (EIR/EIS);
- Determination of analysis to be conducted in the EIR/EIS; and
- Public participation in each of the above tasks.

### Step II-Environmental Study Phase

- Design and pre-engineering of the Project alternatives;
- Preparation of related scientific and engineering studies;
- Analyses of the potential environmental impacts based on these studies;
- Public participation in preparation of the environmental analyses; and
- Preparation of the Draft EIR/EIS.

The BPU selected and contracted with Harland Bartholomew & Associates to prepare the EIR/EIS.

## The Current Project

A new effort to find a solution to the long-term reclaimed water disposal problem began in early 1993. First, emphasis was placed on the Step I-Scoping Phase to identify and weigh all the solutions considered during previous processes plus any and all solutions suggested through an extensive public involvement program. All these potential solutions or parts of solutions were evaluated and screened resulting in a final set of alternatives to be evaluated in the environmental process (refer to Chapter 3.3 in the Draft EIR/EIS). No preferred alternative was selected; all alternatives were evaluated equally. This extensive Scoping Phase took place over a two-year period. It was then followed by Step II-Environmental Study Phase, during which the environmental analysis of the alternatives was carried out.

An extensive list of potential project alternatives and alternative components, representing a wide spectrum of possible solutions to the Subregional System's reclaimed water disposal problem, was developed by members of the public who participated in workshops at the onset of the Step I-Scoping Phase. The list of potential alternatives and alternative components was carefully reviewed to develop a list for evaluation and screening.

The Santa Rosa Long-Term Wastewater Project Screening Report evaluated 32 alternatives according to criteria adopted

by the BPU and was completed and distributed for review in March, 1994. The BPU selected six alternatives, including the No Action (No Project) Alternative, to be carried forward in the preparation of the EIR/EIS. One alternative, the Community Separator option, was dropped by the BPU in April, 1995. The decision to select these alternatives and drop the Community Separator option from further consideration is discussed in the Draft EIR/EIS, Chapter 3.3, and in the Scoping Report.

After further consideration of the alternatives and comments from interested parties, on April 18, 1995, the Santa Rosa City Council confirmed that four primary alternatives, along with the No Action (No Project) Alternative, were to be considered equally for the purposes of the EIR/EIS.

- *Alternative 1:* No Action (No Project).
- *Alternative 2:* South County Reclamation; agricultural irrigation and associated reclaimed water storage in areas south of Santa Rosa.
- *Alternative 3:* West County Reclamation; agricultural irrigation and associated reclaimed water storage in areas west of Santa Rosa.
- *Alternative 4:* Geysers Recharge; injection of reclaimed water for recharge of the Geysers steamfield located in northeastern Sonoma County.

## Design Discharge

The phrase “design discharge” reflects the maximum monthly discharge rate during normal operations expressed as a percentage of the flow in the Russian River. For example, a five percent “design discharge” scenario indicates that the project was designed with facilities that would accommodate monthly average discharge to the Russian River at five percent or less of river flow in at least 19 out of 20 months. Average discharges would be well below the design discharge, as shown in the following table.

Design Discharge (as a Proportion of River Flow)	Monthly Average Discharge October 1–May 14 (as a Proportion of River Flow)
1 Percent	Less than 0.5 Percent
5 Percent	1 Percent
10 Percent	2 Percent
20 Percent	4 Percent

**Table 1-1.**  
*Design Discharge*

- *Alternative 5:* Discharge; release of reclaimed water to the Russian River or Laguna de Santa Rosa at a design discharge rate of up to 20 percent of river flow.

*(Refer to a more detailed description of alternatives in Section 1.6 of this Introduction and Summary or Section 3.4 of the Draft EIR/EIS.)*

## 1.5 PUBLIC INVOLVEMENT

Both CEQA and NEPA emphasize the importance of public involvement in the environmental review process. NEPA directs federal agencies to “encourage and facilitate public involvement in decisions which affect the quality of the human environment” to the fullest extent possible (40 CFR 1500.2d). In another section of the regulations dealing with public involvement, NEPA requires federal agencies to “make diligent efforts to involve the public in preparing and implementing their NEPA procedures” (40 CFR 1506.6a and Corps Procedures for Implementing NEPA 33 CFR 325, Appendix B).

CEQA Guidelines, Section 15201, state that, “Public participation is an essential part of the CEQA process. Each public agency should include provisions in its CEQA procedures for wide public involvement, formal and informal, consistent with its existing activities and procedures, in order to receive and evaluate public reactions to environmental issues...” The Guidelines (Section 15083) also encourage the Lead Agency for an EIR “to consult directly with any person or organization it believes will be

concerned with the environmental effects of the project.”

In order to avoid more serious problems which could arise later in the environmental process, the Guidelines also advise that “many public agencies have found that early consultation solves many potential problems.” The Guidelines note that “...this early consultation may be called scoping,” and that scoping will be necessary when preparing an EIR.

### Planning Public Involvement During Step I-Scoping Phase

Interested members of the public reviewed and commented on the Public Involvement Plan and on the Step I-Scoping Phase starting in mid-1993. The Plan outlined a lengthy process to involve the public in the identification, screening, and eventual selection of project alternatives and alternative components to be analyzed in the EIR/EIS.

### Identification of Potential Alternatives and Alternative Components

Three rounds of workshops, held by the City, provided the principal means for public involvement during the Scoping Phase. Summary feedback reports on these meetings were provided to participants and other members of the public several weeks after each round. In the first two rounds of workshops, held in September and November, 1993, participants identified and then defined more specifically, alternatives and components for inclusion in the screening process. Public input received as a result

### Project Mailing List

Since early 1993, a mailing list has been maintained incorporating key interest groups and individuals who have expressed an interest in this project. The list also includes policymakers, public agencies, members of the media, and property owners whose property may potentially be impacted. The mailing list has grown to over 2,600 people. (*Refer to Appendix C, Volume III of the Draft EIR/EIS.*)



of interviews with individuals and groups and from written correspondence from interested parties also helped to define the list of 79 candidate alternatives and components. These were in addition to the list of 75 alternatives identified by the BPU prior to March, 1993.

The list of potential alternatives and alternative components was then carefully reviewed by the environmental consultant to develop a list of alternatives for evaluation and screening. The two main objectives in developing this shorter list of alternatives were:

- To include all feasible components suggested by the public during the workshops in the Fall of 1993 in at least one alternative; and
- To develop all reasonable alternatives that would meet CEQA and NEPA requirements for alternatives analysis in the EIR/EIS.

A preliminary list of 20 alternatives was published in December, 1993. This list was distributed to the public for review and comment to ensure that it adequately represented all alternative components nominated for consideration. It was then presented to the BPU in January, 1994. To allow time for further public comment, the BPU continued discussion of the alternatives for an additional week. During this public review period, an additional 10 alternatives were suggested by members of the public and presented to the BPU at the meeting in January, 1994. The BPU directed that all 30 alternatives be evaluated in the Scoping Phase. Two additional alternatives were subsequently developed in response to a

request from some members of the public that multiple small reservoirs be evaluated as an option.

### Screening and Selection of Alternatives to be Evaluated in the EIR/EIS

The Screening Report was completed and distributed for public review in March, 1994. The report evaluated all 32 alternatives according to criteria which had been reviewed by the public at the Fall 1993 workshops and subsequently adopted by the BPU. Three public workshops were conducted in April and May, 1994 to obtain public comment on which alternatives should be retained for study in the EIR/EIS and how those studies should be conducted. The BPU also received input from the Policy Advisory Committee (comprised of public officials from the Subregional System member communities), Technical Review Group, and the Technical Advisory Committee, who reviewed the Screening Report. In addition, two joint study sessions on the Screening Report were held by the City Council and BPU, during which members of the public and agency representatives commented both orally and in writing regarding which alternatives should be carried forward for study in the EIR/EIS.

Based on the findings of the Screening Report and comments received from the public, advisory bodies and agencies in May, 1994, the BPU selected six alternatives to be retained for study in the EIR/EIS. Subsequently, one alternative was dropped leaving the five alternatives considered in this document.

## Public Involvement in Determining the Analysis to be Conducted in the EIR/EIS

In addition to the screening of potential project alternatives, Step I-Scoping Phase provided agencies and members of the public the opportunity to comment on the environmental documentation which would be produced for the EIR/EIS. The formal CEQA/NEPA scoping process began with the release of the Notice of Preparation/Notice of Intent and the Preliminary Scoping Report on October 22, 1994. The Notice of Intent was published in the Federal Register on October 21, 1994. The Preliminary Scoping Report provided a summary of the Project, a description of the alternatives proposed for study, a list of issues and impacts, and a draft scope of work. The formal public scoping meeting was held on November 17, 1994 to receive comments on the Notice of Preparation/Notice of Intent and the Preliminary Scoping Report. Written comments also were received until the close of formal public comment on December 5, 1994. The BPU adopted a revised scope of work in April, 1995 and the Final Scoping Report, with additional revisions, was approved in September, 1995. Volume II of the Final Scoping Report is a Feedback Report that traces how and why public comments received during the formal Scoping Phase were used (or not used) in developing the final scope of work for the EIR/EIS. (*Refer to the Scoping Report in Appendix U-1, Volume XVI of the Draft EIR/EIS. Appendix U is not included on the CD ROM.*)

## Public Involvement during Step II—Study Phase: Roundtables

In November and December, 1995, the City sponsored a series of meetings, called Roundtables, to inform participants about how to comment effectively on the Draft EIR/EIS and to view the preliminary results of the consultant's environmental analysis.

The first of two introductory meetings, or Orientation Sessions, provided background information about the EIR/EIS schedule, public involvement, the organization of the EIR/EIS document, and alternatives being studied. The second Orientation Session provided more background on the EIR/EIS process, how to comment effectively on the environmental information, and how the Roundtables would work.

In the Roundtables the environmental consultant presented the approach to analyzing the possible effects of the Project alternatives and shared initial results with participants. The Roundtables provided the opportunity for dialog between environmental consultants and the public about the work in progress. Participants were able to see how the environmental information would be presented in the Draft EIR/EIS. Questions and comments from participants were encouraged by the moderators to help the consultants reexamine their methodologies and preliminary results and, if appropriate, modify their approach and analysis to incorporate the participants' comments.

Roundtables and Orientation Sessions were attended by 160 people. Many attended more than one session. Thirty-nine individuals and organizations submitted written comments on the preliminary EIR/EIS information as well.

Attendees' comments were recorded by City staff and Summary Feedback Reports, presenting an informal record of the proceedings, were mailed to all participants about six weeks after the Roundtables concluded.

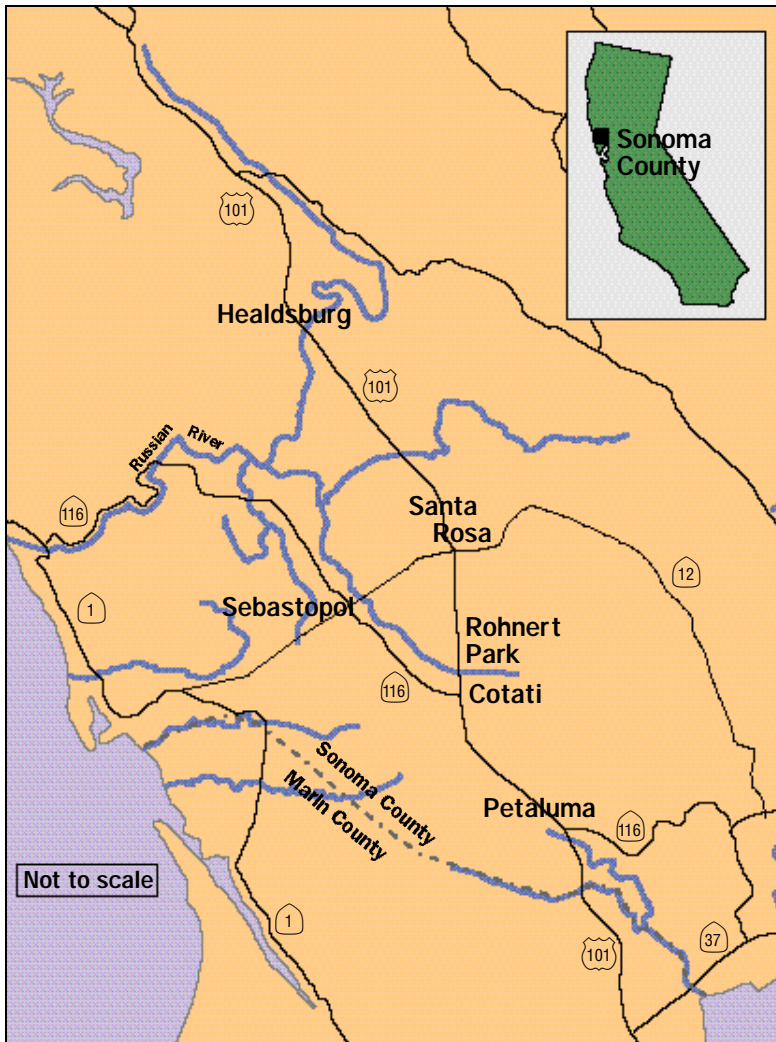
## 1.6 DESCRIPTION OF EXISTING SYSTEM AND ALTERNATIVES

### Project Location

(Refer to Chapter 3.1 in the Draft EIR/EIS.)

The Project area is focused on portions of Sonoma County, California, within and adjacent to the cities of Santa Rosa, Rohnert Park, Cotati, Petaluma, and Sebastopol, and extends from the Geysers area north of Healdsburg to the Tolay Creek Valley southeast of Petaluma and the San Antonio Valley in northern Marin County (see Figure 1-5).

**Figure 1-5.** The Project extends from northwestern Marin County to northwestern Sonoma County, covering about 45,000 acres.



### Existing System

(Refer to Chapter 3.2 in the Draft EIR/EIS.)

The Laguna Plant has a capacity for 18 million gallons per day (average dry weather flow). The Subregional System disposes of reclaimed water by means of a combination of methods, including urban irrigation, created wetlands in the Santa Rosa Plain, agricultural irrigation, and/or discharge to the Russian River via the Laguna de Santa Rosa

During the period 1993–1996, additional facilities were constructed to improve the reliability of the reclamation system prior to implementation of the Long-Term Project, for example:

- The Laguna Advanced Treatment Upgrade Project;
- The North Pipeline Extension;
- The Rohnert Park Water Reuse Project;
- The Sludge Composting Facility;
- The Laguna Joint Wetlands Project; and
- The West Cotati Reclamation Pipeline Project (under design).

These interim improvements are not part of the Project; they have each undergone separate environmental review, and most of them have been constructed as of the date of publishing this Draft EIR/EIS.

## Description of Alternatives

(Refer to Chapter 3.4 in the Draft EIR/EIS.)

### **Alternative 1—No Action (No Project) Alternative**

The No Action Alternative evaluates impacts which would occur if no project were implemented. The No Action Alternative consists of the existing Subregional System, plus various upgrades at the treatment plant and improvements to be constructed under the Interim Period Reclamation System Master Plan. (Refer to Chapter 3.2 in the Draft EIR/EIS for further discussion of interim improvements.)

Treatment capacity will remain at 18 million gallons per day (average dry weather flow), limited by capacity of the influent pumps. This Alternative assumes continuation of existing water conservation practices by member entities.

Alternative 1 is based on the assumption that projected growth as indicated in the currently adopted General Plans of each of the Subregional entities will continue through December, 1997. At that time, it is expected that the North Coast Regional Water Quality Control Board will no longer allow new sewer hookups, effectively creating a building moratorium throughout the Subregional System. This Alternative does not meet the Regional Board reliability requirement.

### **Alternative 2—South County Reclamation Alternative**

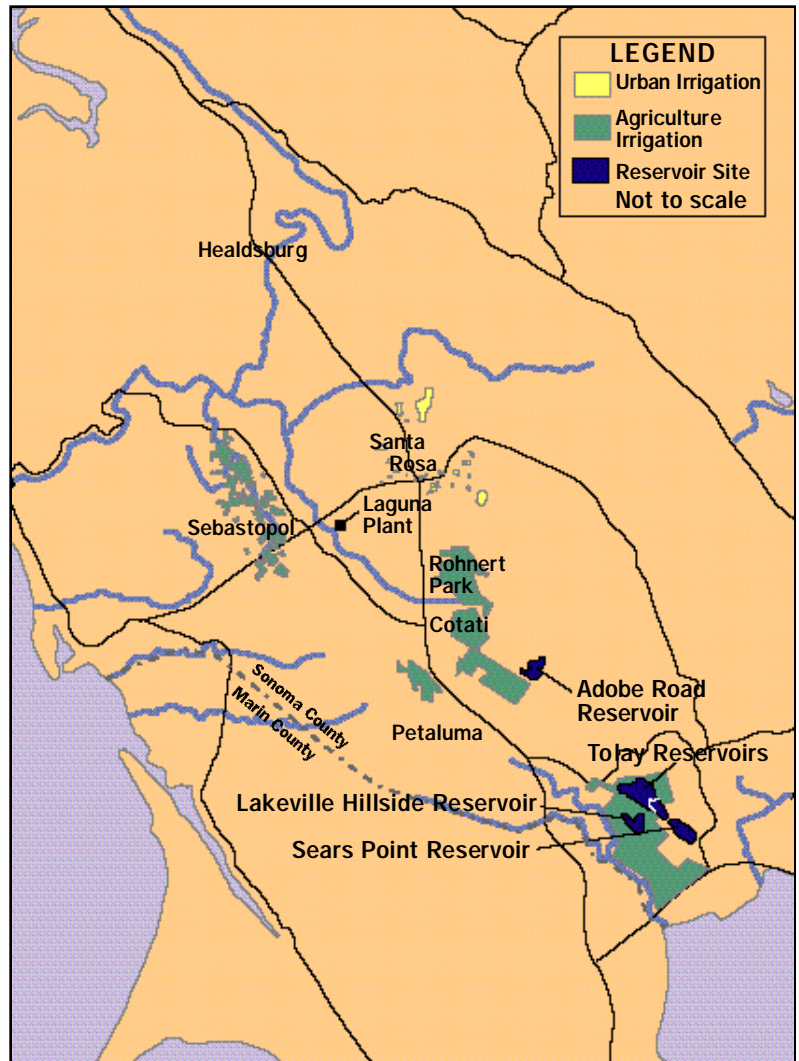
The South County Reclamation Alternative uses reclaimed water for agricultural irrigation in areas south and east of Santa Rosa (see Figure 1-6). The monthly average discharge rate will be less than

one-half percent and the design discharge rate will be one percent of river flow.

Within Alternative 2, four subalternatives have been defined. These alternatives differ in the location of the storage facilities for reclaimed water. The alternatives are:

- Alternative 2A—Reservoir Site:  
Tolay Extended
- Alternative 2B—Reservoir Site:  
Adobe Road and Lakeville Hillside

**Figure 1-6.** Alternative 2, South County Reclamation with four subalternatives





- Alternative 2C—Reservoir Site:  
Tolay Confined
- Alternative 2D—Reservoir Site:  
Sears Point and Lakeville Hillside

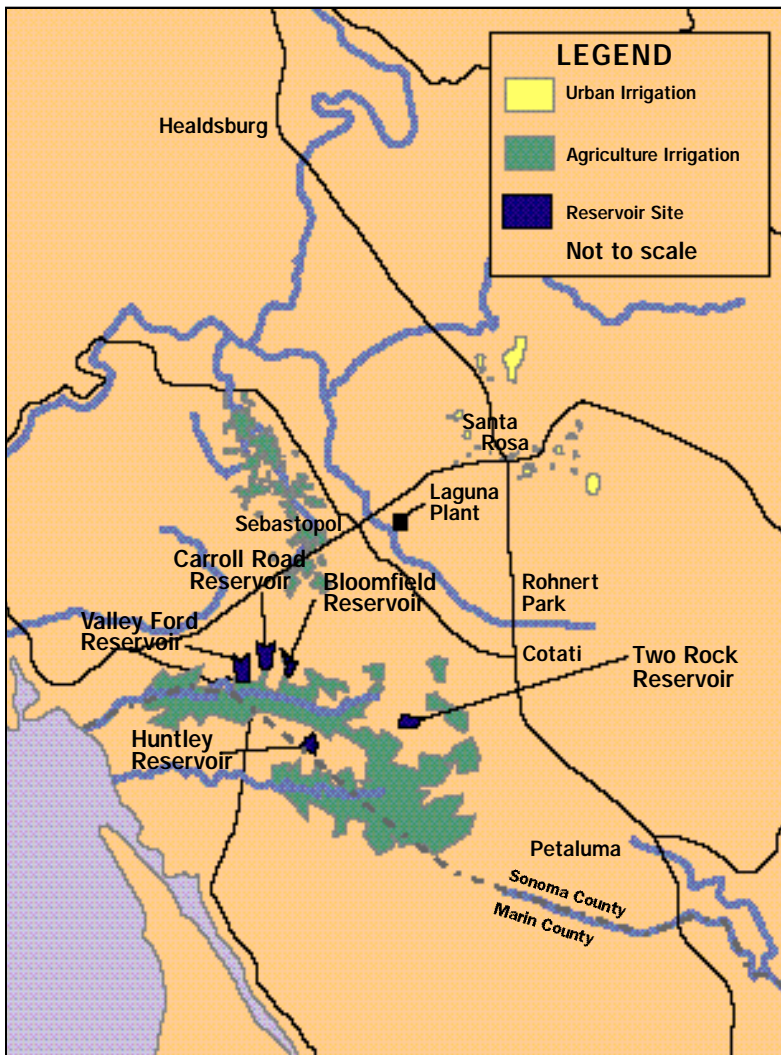
### **Alternative 3—West County Reclamation Alternative**

The West County Reclamation Alternative uses reclaimed water for agricultural irrigation in areas south and west of the Laguna de Santa Rosa (see Figure 1-7). The monthly average discharge rate will be less than one-half percent and the

design discharge rate will be one percent of river flow.

Within Alternative 3, five subalternatives have been defined. Again, these alternatives differ in the location of the storage facilities for reclaimed water. The alternatives are:

- Alternative 3A—Reservoir Site:  
Two Rock
- Alternative 3B—Reservoir Site:  
Bloomfield
- Alternative 3C—Reservoir Site:  
Carroll Road
- Alternative 3D—Reservoir Site:  
Valley Ford
- Alternative 3E—Reservoir Site:  
Huntley



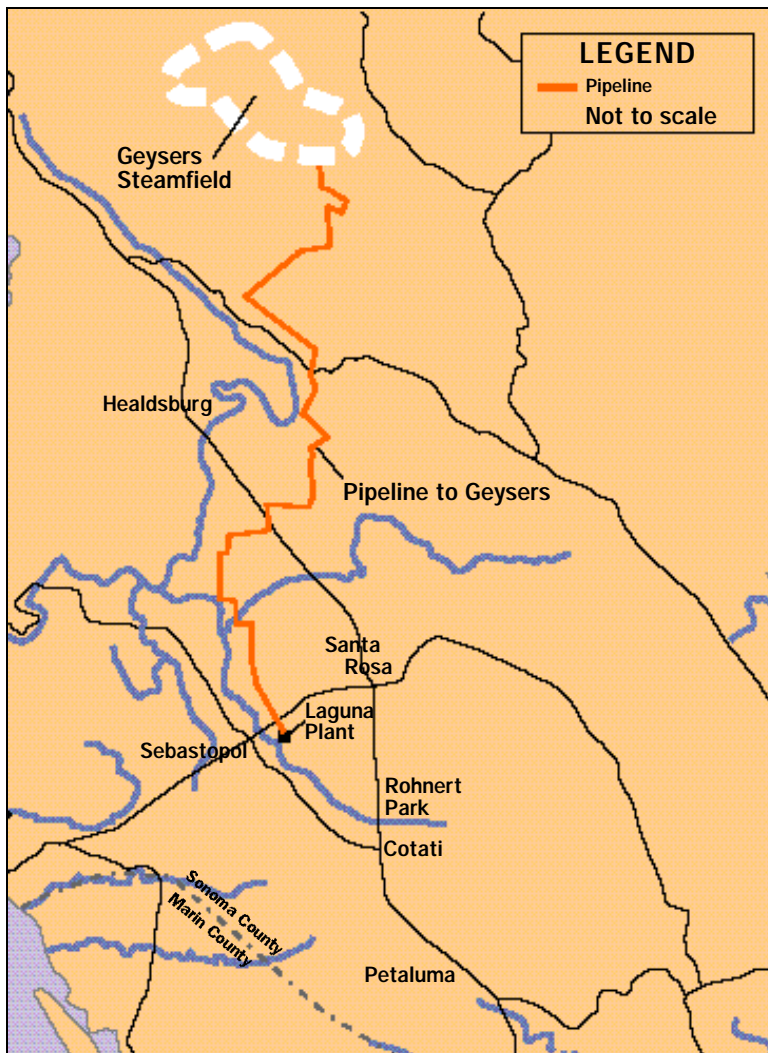
**Figure 1-7.** Alternative 3, West County Reclamation, with five subalternatives

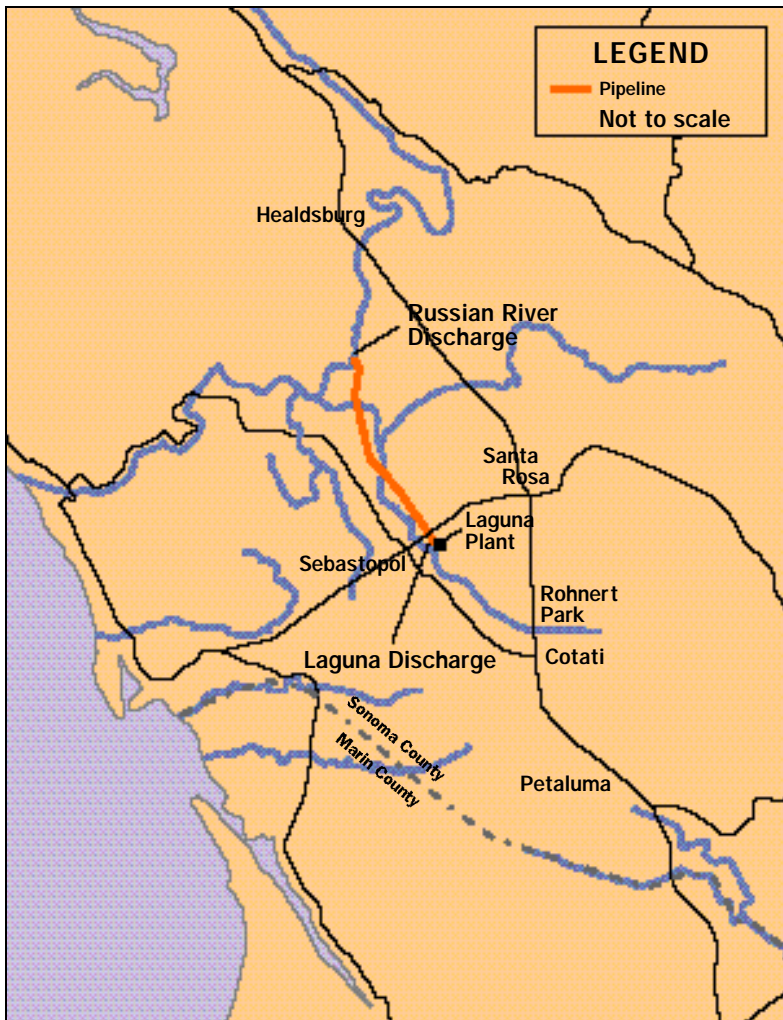
#### **Alternative 4—Geysers Recharge Alternative**

The Geysers Recharge Alternative provides for transmission of reclaimed water to the Geysers, located in the Mayacamas Mountains northeast of Healdsburg, for injection and recharge of the Geysers steamfield, which is currently used as a source for geother-

mal energy (see Figure 1-8). This alternative will involve discharge to the Russian River only during peak wet weather events (much less than one percent on average), and no additional storage is proposed. It is assumed that existing agricultural irrigation acreage will be reduced by about 2,000 acres through attrition.

**Figure 1-8.** Alternative 4,  
Geysers Recharge





**Figure 1-9.** Alternative 5, Discharge, with two sub-alternatives

### **Alternative 5— Discharge Alternative**

The Discharge Alternative provides for the release of reclaimed water at a monthly average discharge rate of four percent and a design discharge rate of up to 20 percent of river flow (see Figure 1-9). Under Alternative 5 no additional reuse or storage of reclaimed water will be required.

Within Alternative 5, two subalternatives have been defined. These alternatives differ in the location of discharge of reclaimed water. The alternatives are:

- Alternative 5A—Discharge Location: Russian River
- Alternative 5B—Discharge Location: Laguna de Santa Rosa

Discharge directly to the Russian River requires a new outfall structure located upstream of the Sonoma County Water Agency intakes. Discharge to the Laguna would occur at the existing outfall locations.

### **Improvements Common to Several Alternatives**

Alternatives 2, 3, 4, and 5 include expansion of the headworks pumps at the Laguna Plant. Alternatives 2 and 3 include urban irrigation projects in the Fountaingrove and Bennett Valley areas of Santa Rosa. Continuation of tertiary treatment is included in all alternatives.



## Description of Components

(Refer to Chapter 3.5 in the Draft EIR/EIS.)

The alternatives evaluated in this EIR/EIS are comprised of various combinations of components such as pipelines and storage reservoirs. All elements of the Project alternatives are included in one of the components described below.

### **Headworks Expansion**

The headworks pumps move sewage from the plant intake to the treatment facilities. The capacity of these pumps currently determines the treatment capacity of the Laguna Plant.

Expansion will be accomplished by replacing existing pumps with new pumps, providing a maximum capacity of 80 million gallons per day for peak wet weather flows, with one pump held in reserve should another need repair.

### **Urban Irrigation**

Two urban irrigation systems will deliver reclaimed water to replace groundwater and/or potable City water now used:

- The Fountaingrove Urban Irrigation System is an extension of the existing reclaimed water irrigation system into the north Santa Rosa area, providing year-round irrigation of approximately 230 acres, including schools, parks, the Fountaingrove Golf Course, and other properties; and
- The Bennett Valley/East Santa Rosa Urban Irrigation System is an extension of the existing reclaimed water irrigation system into the east Santa Rosa area, providing year-round irrigation

of 350 acres, including parks, schools, and the Bennett Valley Golf Course.

The urban irrigation component will dispose of 380 million gallons of reclaimed water annually, or about 4.5 percent of total disposal needs.

### **Pipelines**

Pipelines will transport reclaimed water from the Laguna Plant to storage reservoirs and distribute stored water from reservoirs to agricultural irrigation areas in Alternatives 2 and 3. Transmission pipelines (i.e., from Laguna Plant to reservoir) are typically 48 inches in diameter and may function as distribution pipelines (i.e., from reservoir to agricultural irrigation areas) during irrigation season. Distribution pipelines range from 6 to 24 inches in diameter. Pipelines are proposed for the Fountaingrove and Bennett Valley Urban Irrigation Systems, conveying reclaimed water from the West College Ponds to various urban irrigation sites.

Pipelines are required in Alternative 4 (Geysers Recharge) to transport reclaimed

**Urban Irrigation.**  
Year-round irrigation of 610 acres will dispose of about 380 million gallons of reclaimed water annually.





#### **Pipelines.**

*Up to 90 miles of pipeline will need to be installed if a remote storage reservoir is selected.*

water from Delta Pond to the Geysers area, a lift of 3,300 feet. Pipelines would range from 42 to 48 inches in diameter.

Alternative 5A (Russian River Discharge) requires a new 48-inch pipeline from Delta Pond to the Russian River. Alternative 5B (Laguna Discharge) does not require new pipelines.

#### **Storage Reservoirs.**

*The largest reservoir, Tolay Extended, would hold 5.6 billion gallons, cover 800 acres, and have a dam 90 feet high.*

Pipelines will be buried and will generally follow public rights-of-way. To reach reservoir sites, some pipelines will follow private roads or cross-country alignments.



#### **Storage Reservoirs**

Ten potential storage reservoirs are included in the Project alternatives; five each in South County and West County. Seven of the reservoir sites satisfy the maximum storage requirements for the Project. Two of the following reservoirs would be necessary to meet storage requirements: Sears Point, Adobe Road, and Lakeville Hillside.

Reservoirs will be constructed by damming a natural drainage or valley with an earth-filled embankment dam. The dam would have a clay core and rock facing for slope protection. For all main dams, a concrete-lined, chute-type spillway will extend from the embankment downslope to an energy dissipation structure in a channel below. The energy dissipation structure will consist of a rock lining for the natural creek channel, downstream from the spillway.

Some reservoirs require back dams and saddle dams to prevent reclaimed water from inundating specific areas. Some reservoirs require concrete lined diversion structures to route storm runoff around them.

#### **Pump Stations**

To deliver reclaimed water to West County and South County storage reservoir sites, a new pump station will be located adjacent to the existing station at the Meadowlane ponds across from the Laguna Plant. To deliver reclaimed water to the Sebastopol agricultural irrigation area, a new pump station will be required at Delta Pond. Urban irrigation systems will require new source pump stations at the West College ponds.



To distribute stored water from reservoirs to agricultural irrigation areas, one pump station will be required near the foot of each reservoir dam. In addition to these pump stations, reservoirs at Tolay Extended, Tolay Confined, and Adobe Road also require stormwater pump stations to divert runoff around and downstream of the reservoir.

For Alternative 4, the Geysers Recharge Alternative, a series of four high-pressure pump stations will be required to transport the water about 35 miles from Delta Pond to the Geysers area northeast of Healdsburg.

No additional pumping capacity will be required for either Discharge Alternative.

### **Agricultural Irrigation**

The South County and West County alternatives provide an increase in acreage of agricultural irrigation.

For the South County, an additional 3,800 acres of agricultural irrigation will be required. For the West County, an additional 6,200 acres of agricultural irrigation is required. If agricultural irrigation in the Sebastopol area is utilized (2,200 acres) the agricultural irrigation requirements will be reduced to 2,600 acres for the South County and 4,300 acres for the West County.

Reclaimed water delivered to these areas will be distributed by additional local pipelines to irrigation systems operated by individual users.

### **Geysers Steamfield**

This component will supply reclaimed water to the Geysers for injection into the geothermal steamfield. The intent is



### **Agricultural Irrigation.**

*The acreage required for each alternative takes into account the water consumption rate for the climate and soils of the area.*

to reduce decline in steam production, prolonging the life and economic production of the steamfield and geothermal power plants it supplies.

This component includes two 1,000,000 gallon storage tanks at the end of the transmission pipeline, distribution pipelines to convey water from the storage tanks to the Geysers injection wells, and conversion of 10 to 15 existing geothermal wells to injection wells.

### **Geysers Steamfield.**

*Existing geothermal production wells will be converted for use as reclaimed water injection wells.*





**Discharge.**

The existing discharge outfalls, one of which is pictured here, would be used for Alternatives 1, 2, 3, 4, and 5B.

**Discharge**

Two discharge options are considered: new discharge at the Russian River and continued discharge into the Laguna de Santa Rosa from the existing storage ponds. A new outfall structure will be

located on the east bank of the Russian River for the Russian River Discharge Alternative. No new construction will be required for Laguna discharge.

**Cost Estimates**

(Refer to Chapter 3.6 in the Draft EIR/EIS.)

An estimate of major capital, operation, and maintenance costs for project alternatives (in 1995 dollars) was prepared at a planning level of detail, to allow a relative cost comparison among alternatives (see Table 1-2).

**Cumulative Projects**

(Refer to Chapter 3.7 in the Draft EIR/EIS.)

Cumulative impacts were evaluated based on a cumulative project list. Cumulative projects are defined as those

**Table 1-2.**

Cost Estimates		Additional Annual Operation & Maintenance Cost (1,000s)	
Alternative		Capital Cost <sup>1</sup> (1,000s)	
1	No Action (No Project)	0	0
2A	Tolay Extended	\$312,300	\$2,500
2B	Adobe Road and Lakeville Hillside	352,200	2,400
2C	Tolay Confined	353,300	2,600
2D	Sears Point and Lakeville Hillside	376,700	3,200
3A	Two Rock	246,400	1,600
3B	Bloomfield	282,700	1,700
3C	Carroll Road	243,500	1,800
3D	Valley Ford	251,500	1,800
3E	Huntley	253,900	1,700
4	Geyser, Recharge	208,300	6,700
5A	Discharge to Russian River	64,000	100
5B	Discharge to Laguna	46,400	0

<sup>1</sup>Capital costs include construction, engineering, and land costs.

past, present or reasonably foreseeable future projects with environmental impacts related to Project impacts. The cumulative Project study area is defined as the watersheds of water bodies potentially affected by one or more Project components: namely the Russian River, Petaluma River, Americano Creek, Stemple Creek, and Tolay Creek.

One potentially cumulative project is the City of Santa Rosa's 1996 update of its General Plan. Refer to Section 3.5 in Description of Existing System and Alternatives, for a discussion of this project.

## Required Permits and Approvals

*(Refer to Chapter 3.8 in the Draft EIR/EIS.)*

There are numerous potentially applicable federal, state, regional, county, and city permits required for the construction, maintenance, and operation of the Project. The Permitting Report (HBA November 1995) identifies permits and approvals to be obtained and timing of permit acquisition. *(Refer to Appendix D-5, Volume IV.)*

## 1.7 AREAS OF CONTROVERSY AND INDEX OF KEY ISSUES TO BE RESOLVED

(Refer to the Scoping Report, Appendix U of the Draft EIR/EIS. This Appendix is not contained on the CD ROM.)

During the Scoping Phase described herein, environmental issues were identified for discussion in this EIR/EIS. The issues are listed below with the chapter or section reference.

**Table 1-3.**

Issues	Chapter/Section
Agricultural production value	4.18. Socio-economics
Air emissions	4.12. Air Quality
Archaeological resources	4.15. Cultural Resources and Paleontology
Area of Special Biological Significance	4.6. Surface Water Quality
Biological resources	4.8 Terrestrial Biological Resources, 4.9 Aquatic Biological Resources, and 4.10 Jurisdictional Wetlands Resources
Community Separators	4.1. Land Use and 4.14. Visual Resources
Earthquake-induced groundshaking and liquefaction	4.3. Geology, Soils, and Seismicity
Energy requirements	4.17. Energy
Erosion, regarding loss of soil productivity	4.2. Agriculture
Erosion, due to construction	4.3. Geology, Soils, and Seismicity,
Erosion, regarding streambank erosion due to discharge	4.4. Surface Water Hydrology
Fish and wildlife	4.8 Terrestrial Biological Resources and 4.9 Aquatic Biological Resources
Flooding due to dam failure	4.19. Inundation due to Dam Failure and 4.7. Public Health and Safety
Flooding due to discharge	4.4. Surface Water Hydrology
General Plan consistency	Each section
Groundwater	4.5 Groundwater
Growth inducing impacts	Chapter 5
Gulf of the Farallones National Marine Sanctuary	4.6. Surface Water Quality and 4.9. Aquatic Biological Resources
Hazardous waste sites	4.7. Public Health and Safety
Historical resources	4.15. Cultural Resources and Paleontology

(Continues)

(Continued)

Issues	Chapter/Section
Incompatible land uses	4.1. Land Use
Induced seismicity at the Geysers	4.3. Geology, Soils, and Seismicity
Land acquisition	Each section and Appendix D-7
Light and glare	4.14. Visual Resources
Loss of agricultural lands	4.2. Agriculture
Mineral resource designations	4.1. Land Use
National Register properties	4.15. Cultural Resources and Paleontology
Noise	4.13 Noise
Odors	4.12. Air Quality
Open space land converted to urban uses	4.1. Land Use
Paleontologic resources	4.15. Cultural Resources and Paleontology
Parks and recreation	4.16. Public Services, Utilities, and Recreation
Police and fire services	4.16. Public Services, Utilities, and Recreation
Public exposure to chemicals and pathogens	4.7. Public Health and Safety
Rare or threatened species and habitat	4.8. Terrestrial Biological Resources and 4.9. Aquatic Biological Resources
Sediment quality	4.6. Surface Water Quality
Service charges and demand fees	4.18. Socio-economics
Streambank erosion	4.4. Surface Water Hydrology
Tourism	4.18. Socio-economics
Trace elements and salinity buildup	4.2. Agriculture
Traffic, congestion, and restricted access	4.11. Transportation
Unstable slopes	4.3. Geology, Soils and Seismicity
Water Quality	4.6 Surface Water Quality
Wetlands	4.10 Jurisdictional Wetlands Resources
Williamson Act	4.2. Agriculture
Zoning	4.1. Land Use

## 1.8 MITIGATION AND MONITORING PROGRAM

*(Refer to Chapter 2 in the Draft EIR/EIS.)*

Project mitigation measures are divided into several types:

- Section 2.1, Compliance with Existing Programs, lists regulations and agency

requirements which avoid or minimize environmental impacts. For example, the State Division of Safety of Dams is listed because that agency regulates how dams at the reservoir sites must be designed and constructed to prevent failure. *(Refer to Section 2.1 in the Draft EIR/EIS.)*

### Regarding Mitigation

CEQA Section 21001: “The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effect of such projects...”

Both NEPA and CEQA define mitigation as follows:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

A Mitigation Monitoring Program is required under CEQA Section 21081.6 to ensure compliance with adopted mitigation measures during project implementation. Similarly, NEPA Section 1505.2(c) requires that the Record of Decision compel compliance with the mitigation measures contained in it through a monitoring and enforcement program.

- Section 2.2, Measures Included in the Project, lists 27 measures which have been adopted as part of the Project by the City. These measures require both avoidance and minimization of impacts. For example, Measure 2.2.5, Avoid Sensitive Biological Resources, requires that the City install pipelines under streambeds using a jack and bore construction technique at 35 stream crossings. *(Refer to Section 2.2 in the Draft EIR/EIS.)*

- Sections 2.3, 2.4, and 2.5, Planning, Construction, and Operation and Maintenance Measures, list mitigation measures which serve to avoid, reduce, rectify, and compensate for identified impacts. These measures must be approved by the City at the time of Project approval as its commitment to implementation. *(Refer to Sections 2.3, 2.4, and 2.5 in the Draft EIR/EIS.)*

In addition to the specific measures listed in Chapter 2 of the Draft EIR/EIS, the design of the Project alternatives involves many features which serve to avoid or minimize impacts. These features continued to evolve as the environmental evaluation of the Project alternatives progressed.



## 1.9 ENVIRONMENTAL IMPACTS AND MITIGATION

(Refer to Chapter 4 in the Draft EIR/EIS.)

A brief summary of the potential environmental impacts and mitigation measures is provided below for each section in Chapter 4 of the Draft EIR/EIS. Following this summary, Table 1.13 provides a list of evaluation criteria, significant impacts, and mitigation measures.

### Land Use

(Refer to Chapter 4.1 of the Draft EIR/EIS.)

Potential land use impacts may occur if the Project would change land use in a manner inconsistent with applicable public policies or cause a loss of open space.

Two significant land use impacts have been identified. Alternatives 2B and 3A, Adobe Road and Two Rock reservoir sites, conflict with the Sonoma County Aggregate Resource Management Plan, because the storage reservoirs will prevent use of an existing or potential quarry. The impact on aggregate resources at the Two Rock reservoir site cannot be mitigated due to the volume of aggregate material underlying the reservoir. However, most of the resource at Adobe Road can be used in construction of the reservoir.

Alternative 4, Geysers Recharge, will require conversion of public open space for a pump station located along Pine Flat Road on property for which the Sonoma County Agricultural Preservation and Open Space District holds conservation easements. This impact can be mitigated to a level below significance.

Storage reservoirs for agricultural irrigation are not specifically addressed in the Sonoma County General Plan or Zoning Ordinance. Based upon the function of the reservoirs as an integral part of agricultural production and the presence of other agricultural reservoirs in similar zones, it appears that the reservoirs will be consistent with the General Plan and zoning. None of the Project facilities are located in a designated Community Separator. One pump station and portions of West County agricultural irrigation areas are within the Marin or Sonoma County Coastal Zone.

### Agriculture

(Refer to Chapter 4.2 of the Draft EIR/EIS.)

Impacts to agriculture were analyzed to determine whether the Project will result in conversion of prime agricultural land to a non-agricultural use, and whether the Project will impair the agricultural productivity of prime agricultural land.

Impacts will occur primarily due to construction of reservoirs, resulting in loss of prime farmland and the cancellation

**Table 1-4.** Each reservoir site has either grazing land or farm land or both.

Loss of Farm & Grazing Land at Reservoir Sites (acres)		
	<u>Farm</u>	<u>Grazing</u>
Tolay Extended	456	158
Adobe Road	28	147
Tolay Confined	108	76
Lakeville Hillside	0	152
Sears Point	0	274
Two Rock	114	115
Bloomfield	0	195
Carroll Road	0	241
Valley Ford	0	230
Huntley	0	184

of Williamson Act contracts (see Table 1-4). At the same time, provision of reclaimed water for irrigation will have a beneficial impact on the amount of prime farmland in the study area, by raising the status of land to a more productive category as measured by the State Farmlands Mapping Program. However, the increase in acres qualifying as Prime Farmland cannot be estimated, because it is unknown which land-owners may contract with the City for reclaimed water.

Construction of the Bloomfield and Huntley reservoirs (Alternatives 3B and 3E) will result in the cancellation of Williamson Act contracts for two adjoining properties remaining in private ownership after acquisition of the reservoir site, as the remainder of these parcels would be less than the minimum for such contracts.

Construction of pump stations will result in loss of prime farmland under Alternatives 2, 3, and 4. There is no mitigation available to reduce impacts from loss of prime farmland or cancellation of Williamson Act contracts to less than significant.

Agricultural irrigation will have a significant adverse impact on soil productivity due to erosion of topsoil; however, mitigation is available to reduce this impact to less than significant. The Project will not have a significant effect on soil productivity due to build up of trace elements or salts.

### Geology, Soils, and Seismicity (Refer to Chapter 4.3 of the Draft EIR/EIS.)

The Geology section analyzes issues related to slope stability, earthquakes

(including ground rupture, shaking, liquefaction, and induced seismicity at the Geysers), and soil limitations such as corrosiveness and expansiveness. Unstable slope conditions present problems for some South County reservoirs, which will experience accelerated siltation. Unstable slopes will also affect the Geysers pipeline. Although all of the alternatives are potentially subject to strong ground shaking in an earthquake, these impacts can be avoided by constructing facilities according to requirements of the Division of Safety of Dams and building codes, and impacts are, therefore, less than significant. Liquefaction is a concern for the Russian River outfall and four pump stations common to both the South County and West County Reclamation alternatives, and the hazard can be mitigated to a level below significance.

The Geysers and urban irrigation pipelines cross an active fault. As a result, the Discharge Alternative is the only option not subject to the significant impacts associated with ground rupture. Geysers injection will cause a modest increase in induced seismicity, but impacts will be less than significant due to the small magnitude of the seismic events and the small increase in frequency of such events.

Some South County Alternative facilities will be subject to damage from expansive and corrosive soils, but these impacts can be mitigated. Erosion during construction will not be significant for any of the alternatives with implementation of appropriate erosion control plans.

## Surface Water Hydrology

(Refer to Chapter 4.4 of the Draft EIR/EIS.)

None of the components associated with the Reclamation, Geysers, or Discharge alternatives will cause significant streambank erosion or significantly affect flooding in the Laguna de Santa Rosa or Russian River. However, the cumulative effect of reclaimed water discharge and increased runoff due to development in the Russian River watershed may cause a significant flooding impact. The Project's contribution to flooding would be mitigated by avoiding discharge during flood conditions.

## Groundwater

(Refer to Chapter 4.5 of the Draft EIR/EIS.)

Both South and West County alternatives will degrade groundwater quality of existing and potential drinking water wells, as a result of nitrate levels in reclaimed water migrating from reservoirs. Reservoirs will also deplete groundwater levels in the immediate vicinity of the dam. These impacts can be mitigated by monitoring groundwater movement and levels and providing an alternative water supply if necessary.

Localized groundwater mounding near West County reservoirs will affect leach-fields, which can be mitigated with installation of non-conventional septic systems. Geysers Recharge and Russian River Discharge alternatives will not affect quantity or quality of groundwater in drinking water wells.

## Surface Water Quality

(Refer to Chapter 4.6 of the Draft EIR/EIS.)

The Surface Water Quality section evaluates the potential of the Project to

exceed EPA standards designed to protect aquatic life and Regional Water Quality Control Board standards designed to protect beneficial uses of surface waters. Also, the section specifically addresses water quality changes in special sites, including the esteros and the Gulf of the Farallones National Marine Sanctuary. Finally, the section evaluates Project impacts relative to proposed EPA sediment quality standards.

The No Action Alternative, which includes a slight increase in discharge to the Laguna de Santa Rosa compared with existing conditions, will have both significant adverse and beneficial impacts on biostimulatory substances in the Laguna, depending upon hydrologic conditions; however, adverse effects will be more frequent than beneficial effects. In addition, the City will not be able to meet its Waste Reduction Strategy goal assigned by the Regional Water Quality Control Board. (This Strategy assigns goals for nitrogen and ammonia reduction for dairies along the Laguna and discharge from the Subregional System.) Significant impacts due to increased toxicity and cyanide levels will also occur.

Reservoirs in both the South and West County alternatives will result in seepage which will cause significant water quality impacts for a short segment of stream below each dam.

The one percent design discharge (*refer to page 13 of this Summary for an explanation of design discharge*) to the Laguna associated with the South and West County alternatives will have both significant adverse and beneficial impacts on biostimulatory substances under different hydrologic conditions;

## Water Quality Terminology

Water quality criteria (standards) have been developed by the U.S. Environmental Protection Agency and the Regional Water Quality Control Board to protect aquatic life and to protect against aesthetic water quality impacts. Here are some of the types of conditions which have led to establishment of the criteria:

- **Biostimulation.** Growth-inducing substances, such as nitrogen, can stimulate plant production. This growth, known as biostimulation, can consume more oxygen than is available in the water. Because dissolved oxygen is required for aquatic plants and animals, depletion of oxygen that occurs in association with heavy algae blooms is undesirable. No numeric criteria have been established by federal or state authorities for nitrogen compounds to prevent biostimulation; instead a narrative criterion has been established to limit biostimulatory effects and to control algae.
- **Toxicity and Bioaccumulation.** Organic compounds and metals (for example, pesticides, PCBs, petroleum products, and copper) can be toxic to aquatic life. Many metals are required for normal plant or animal growth and are toxic only at higher concentrations. Bioaccumulation occurs when a constituent accumulates in biological tissue to levels that exceed the concentration in surrounding water. Some substances are toxic but do not bioaccumulate (for example, salt and ammonia). Other substances are not toxic at concentrations found normally in water, but are toxic at concentrations that can develop through the food chain (for example, PCBs). Numeric criteria have been established for many toxic effects, but not for bioaccumulation. Instead, potential bioaccumulation impacts are generally evaluated through an ecological risk assessment, which can be found in the Draft EIR/EIS Aquatic Biological Resources Section, 4.9.
- **Physical and Habitat Effects.** Some substances have damaging effects on habitat or directly on organisms. For example, silt can affect fish gills or accumulate in the bottom of a creek, rendering the creek unsuitable for organisms that require sand or gravel for reproduction. No numeric criteria have been established for physical substances, but narrative criteria have been set for turbidity, oil and grease, suspended matter, settleable matter, floating material, and color.
- **Aesthetics.** The narrative criteria listed above for physical and habitat effects also protect against aesthetic impacts.

however, beneficial effects will be more frequent. Also, these alternatives will meet the City's Waste Reduction Strategy goals.

Irrigation in both South and West County alternatives will result in subflow (underground flow) discharge to local creeks. The impact on South County streams is less than significant. The West County Alternative irrigation subflow will discharge to Americano and Stemple creeks. These feed into the Estero Americano and the Estero de San Antonio, which are part of the National Marine Sanctuary, where any change to the water quality is considered significant. Changes in salinity, ammonia concentration, dissolved oxygen, biostimulation, metals, nutrients, individual inorganic minerals, and organic compounds will occur in the esteros.

The 20 percent design discharge alternatives will result in significant impacts to the Russian River, the Laguna, and Santa Rosa Creek. A 20 percent design discharge to either the Laguna or the Russian River will have both significant adverse and beneficial impacts with respect to biostimulatory substances and turbidity depending upon hydrologic conditions; however, adverse impacts will be more frequent.

A 20 percent design discharge to the Russian River will also have significant adverse impacts with respect to conductivity. By moving the existing discharge from the Laguna to the Russian River, a significant contribution will be made toward reaching the City's Waste Reduction Strategy goals in the Laguna. Conversely, a 20 percent design discharge to the Laguna will have

significant adverse impacts on Waste Reduction Strategy goals, as well as adverse impacts on water quality with respect to dissolved oxygen, cyanide, and toxicity levels, but a beneficial impact on turbidity.

Mitigation will reduce some discharge impacts, such as those with respect to cyanide, turbidity, Waste Reduction Strategy, and toxicity, below the level of significance. Other discharge impacts, such as those on conductivity, dissolved oxygen, and biostimulatory substances, will be significant and unavoidable. However, the cumulative projects include reduction of nutrients to the Laguna. With implementation of cumulative projects and mitigation proposed for the Long-Term Project discharge impacts, the 20% design discharge to the Laguna will have a less-than-significant impact. Impacts of storage and irrigation on streams will also be reduced below the level of significance, but impacts of storage and irrigation on the esteros will remain significant.

## Public Health and Safety

*(Refer to Chapter 4.7 of the Draft EIR/EIS.)*

Based on findings of the human health risk assessment (see insert), potential exposure to pathogenic organisms and to all chemicals except nitrate is less than significant for all alternatives.

The only potentially significant impact is exposure to increased nitrate concentration resulting from migration of groundwater from reservoirs to local water wells in West and South County, as noted in the Groundwater Section. This impact will be mitigated by

## How Risk Assessment Works

A risk assessment models how chemicals and pathogens move through the environment and what effects they might have on humans, animals, and their food supplies. Risk assessment is a scientifically recognized way to analyze these potential effects without actually subjecting the real world environment to risk. Two separate risk assessments are included in this EIR/EIS. The **Ecological Risk Assessment** analyzes Project impacts on fish and wildlife either through direct contact with chemicals in surface soil, water, and sediments, or through ingestion. The **Human Health Risk Assessment** analyzes health risks to humans in a similar fashion, by assessing the direct effects of exposure to reclaimed water as well as the indirect effects of eating fish caught in water bodies which receive reclaimed water discharges.

Risk assessment models are set up by making assumptions that deliberately overestimate all the components of risk, a much more severe situation than could ever be expected to occur in reality. For example, the Public Health Risk Assessment assumes that humans would use 100% reclaimed water as their domestic water supply for their lifetime. By assuming conditions much worse than could occur in the real world, the risk assessment provides the assurance that a prediction of no impact, means no impact in reality.

The Ecological Risk Assessment is in the Aquatic Biological Resources Section 4.9, and the Public Health Risk Assessment is in the Public Health and Safety Section, 4.7.

monitoring groundwater movement and providing an alternative water supply as necessary. Due to the headworks expansion at the Laguna Plant, increased chlorine use is expected; this will not present a significant risk because existing safety procedures provide appropriate safeguards. All safety hazards associated with construction can be mitigated. Dams associated with the West and South County alternatives

Loss of Native Plant Communities at Reservoir Sites (acres)			
	Oak Woodland	Riparian Woodland	Native Grassland
Tolay Extended	0	7	25
Adobe Road	17	60	0
Tolay Confined	0	7	25
Lakeville Hillside	0	11	0.6
Sears Point	0.6	59	0
Two Rock	58	16	1
Bloomfield	0.6	10	0
Carroll Road	0	17	1
Valley Ford	1	9	0
Huntley	0	5	2

**Table 1-5.** Sensitive native plant communities have undergone substantial reductions throughout California. Further loss due to the Project must be fully mitigated.

would be constructed in accordance with requirements of the Division of Safety of Dams, and will therefore be expected to pose an insignificant risk to public safety from dam failure and resultant flooding.

## Terrestrial Biological Resources

(Refer to Chapter 4.8 of the Draft EIR/EIS.)

The evaluation indicates that no endangered, rare, or threatened terrestrial species or their habitat will be affected by the Project. Many impacts will be avoided by measures adopted as part of the Project which require relocation of pipeline alignments, pump stations, and other facilities in response to sensitive biological resources. Also, measures included in the Project will require sensitive resources, such as oak woodlands and riparian woodlands in the agricultural irrigation areas, to be avoided.

The primary significant impact of the Project is loss of sensitive plant communities such as oak woodland, native grassland, and riparian woodland,

through construction of storage reservoirs (see Table 1-5). These impacts will be mitigated through compensatory measures in the Sensitive Biological Resources Conservation Program and Revegetation Program.

A significant but mitigable impact is the loss of sensitive native plant communities due to the outfall structure required for the Russian River Discharge Alternative.

The combined impact of the Project and cumulative projects results in three new significant impacts: loss of hayfield tarplant and bristly linanthus populations at Two Rock and Huntley; loss of annual grassland for all the reclamation alternatives; and, increased ecological risk to fish-eating birds for alternatives discharging to the Laguna. Mitigation is provided for the plant population and ecological risk, but no feasible mitigation has been identified for the loss of annual grassland.

## Aquatic Biological Resources

(Refer to Chapter 4.9 of the Draft EIR/EIS.)

The evaluation indicates that the only endangered, rare, or threatened aquatic species or habitat affected by the Project is the red-legged frog. There are two closely related subspecies of red-legged frog in the Project area. Northern red-legged frogs are a California Department of Fish and Game species of special concern. The California red-legged frog is federally-threatened.

The recent federal ruling establishing the status of California red-legged frog as federally-threatened provided the

geographic range of the species. Red-legged frogs at the South County reservoir sites are identified as the California subspecies and are considered federally-threatened. All other red-legged frogs in the Project area appear to be the northern subspecies, although final confirmation has not been received. Pending confirmation, the Draft EIR/EIS considers all red-legged frogs in the Project area to be the California subspecies.

Many impacts will be avoided by measures adopted as part of the Project which, for example, require jack and bore construction techniques for placement of pipelines across streams.

Habitat for a species of special concern, the northwestern pond turtle, was found at the Tolay reservoir sites. This significant impact will be mitigated by compensatory measures in the Sensitive Biological Resources Conservation Program.

Freshwater marsh, valuable stream habitat, or pond habitat will be lost due to reservoir construction at all the reservoir sites except Bloomfield, Valley Ford, and Huntley.

Dams at storage reservoirs will cut off flows downstream, significantly affecting aquatic habitat at all reservoir sites except Sears Point, Two Rock, and Huntley. These significant impacts will be mitigated through compensatory measures found in the Sensitive Biological Resource Conservation Program.

An ecological risk assessment was performed to evaluate potential impacts due to bioaccumulation or toxicity in aquatic

species exposed to reclaimed water from the storage reservoir, agricultural irrigation, or discharge components. This screening level risk assessment identified no significant impacts for any of the components.

Significant impacts were identified for the West County Reclamation Alternative because both reservoirs and agricultural irrigation will cause some alteration of aquatic habitat in the esteros, a part of the Gulf of the Farallones National Marine Sanctuary. Because of the sensitivity of the esteros' ecology and the regulatory environment of the Sanctuary, any effect in this region is considered significant, and no feasible mitigation has been identified.

## Jurisdictional Wetlands Resources

*(Refer to Chapter 4.10 of the Draft EIR/EIS.)*

Substantial acreage of wetlands will be destroyed by construction of the storage reservoirs for both the South County and West County Reclamation Alternatives (see Table 1-6). Less than an acre of wetlands will be filled for the outfall structure associated with the Russian River Discharge Alternative. Each of these impacts is significant and will be mitigated through compensatory measures identified in the Sensitive Biological Resources Conservation Program.

Also, pipeline alignments for the Reclamation and Geysers Recharge alternatives cross several intermittent streams, where construction will take place during the dry season. Though no permanent fill will be placed in the streams, there will be some disturbance



### Loss of Wetlands at Reservoir Sites (acres)

Tolay Extended	248
Adobe Road	30
Tolay Confined	87
Lakeville Hillside	22
Sears Point	53
Two Rock	62
Bloomfield	57
Carroll Road	69
Valley Ford	102
Huntley	48

**Table 1-6.** To meet the state and federal policies of no net loss of wetlands, all loss of wetlands will be fully mitigated.

of stream environment, resulting in significant impact. This impact will be mitigated through limitations on the timing of construction, careful revegetation, and restoration of the streambed.

**Table 1-7.** If sensitive biological or visual resources or private improvements are located within the public right-of-way, pipeline construction may be moved into one lane of traffic to avoid impacts.

### Transportation

(Refer to Chapter 4.11 of the Draft EIR/EIS.)

The Project will not generate significant traffic in the post-construction phase, and there are no permanent changes

planned for the existing transportation network. Therefore, the transportation evaluation focuses on construction-related impacts. Many construction-related impacts have been avoided through Standard Traffic Control Procedures adopted as part of the Project. (Refer to Measures 19–23 in Chapter 2.2 of the Draft EIR/EIS.) These Procedures provide for notification and rerouting of emergency vehicles, management of lane closures and access, jack and bore construction for pipelines under high volume roadways and railroads, parking and road repair requirements, limitations on construction and delivery hours, transportation and encroachment permit requirements, and safety procedures.

Remaining significant traffic impacts will occur during the construction phase of all alternatives (except the Laguna Discharge Alternative, which involves no construction). Table 1-7 indicates how many miles of pipeline would need to be built within the public right-of-way for each alternative.

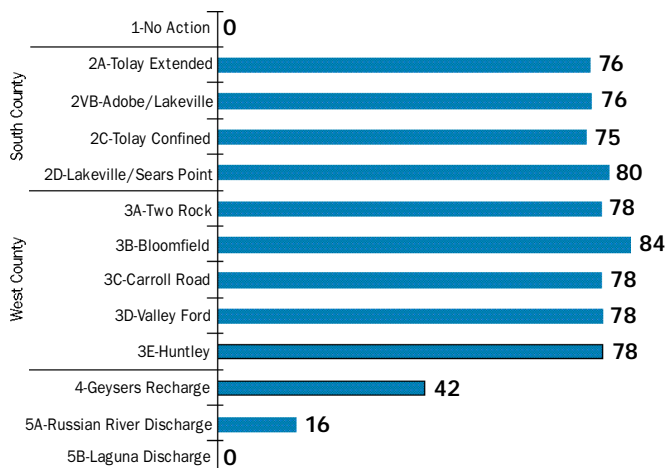
Lane closures for pipeline construction will delay traffic, delay transit services, restrict access, increase safety hazards, and reroute traffic, including emergency vehicles. Also, construction traffic will add vehicles and trucks to local roads, causing significant congestion.

### Air Quality

(Refer to Chapter 4.12 of the Draft EIR/EIS.)

Construction of reservoirs associated with the West County and South County alternatives will generate emissions

### Roadway Miles Affected by Pipeline Construction



exceeding the point of significance for particulates (dust), nitrogen oxides, and carbon monoxide. Construction of the Geysers steamfield component will also cause short-term emissions of nitrogen oxides exceeding threshold levels. Although mitigation will reduce emissions, the impact would still be significant.

Operational emissions will not be significant for any of the alternatives. Increased emissions from the expansion of the headworks were determined to exceed trigger levels, but a screening-level risk analysis performed as part of a previous environmental analysis showed that toxic emissions will not exceed a cancer risk of one in one million, and will therefore not be significant. None of the Project components is expected to have significant odor impacts, but previous analysis of sludge handling facilities has shown that there may be significant odor problems associated with increased sludge production.

## Noise

*(Refer to Chapter 4.13 of the Draft EIR/EIS.)*

All of the alternatives except the Laguna Discharge option will have significant temporary noise impacts associated with construction of pipelines, pump stations, and/or reservoirs. Noise from construction traffic, although temporary, will also be significant for the South County, West County, Geysers, and Russian River Discharge alternatives. Pump stations associated with the South County, West County, and Geysers alternatives will all have significant long-term operational impacts. Although mitigation will reduce noise levels, the

increase in noise levels in rural areas will still be perceptible, and will be an unavoidable adverse impact.

## Visual Resources

*(Refer to Chapter 4.14 of the Draft EIR/EIS.)*

Project impacts on visual resources were evaluated based upon the changes in views from public viewpoints (such as scenic corridors, designated scenic landscape units, roadways, parks, or recreation areas) up to three miles away, and from private residences up to 2,000 feet away. Significant impacts will occur along pipeline routes because of the strong visual contrast resulting from the disturbance of the landscape edge from grading and removal of vegetation.

Significant impacts occur at the reservoir sites due to one or more of the following: 1) strong contrast of the dam face with the surrounding landscape; 2) obstruction by the dam face of focal views of ridgelines and valleys; and 3) displacement of mature stands of trees. The pump stations will also have potential visual impacts due to their contrast with surrounding agricultural and rural environments, particularly in foreground views. These impacts will affect both public viewpoints and private residences.

Mitigation reduces the impacts related to visual contrast. However, there is no mitigation available for permanent view obstruction or displacement of mature stands of trees. Facilities at the Geysers, irrigation, and the discharge outfall on the Russian River will not result in significant visual impacts.

## Cultural Resources and Paleontology

(Refer to Chapter 4.15 of the Draft EIR/EIS.)

Project impacts to cultural resources were evaluated by establishing known resources on affected properties and estimating unknown resources (potentially existing but not yet discovered), through a sensitivity analysis for the agricultural irrigation areas. A records search was conducted for all affected properties, and a complete field survey was conducted for the storage reservoir sites.

The study area is rich in cultural resources of various kinds; only the Laguna Discharge Alternative avoids impacts because it involves no construction. Types of resources found include prehistoric and historic archaeological sites, architectural historical sites and settings, and historic landscapes. See Table 1-8 which displays the number of known sites for each alternative.

appropriate. Although some resources, such as those at Tolay and Two Rock reservoir sites are extensive, and mitigation would be time consuming, all impacts will be mitigated to a level below significance.

The paleontology section analyzes the potential disturbance of unknown vertebrate paleontologic (fossil) resources. This analysis was based on review of pertinent geologic mapping and known locations of potential fossil-bearing rock units. These rock units are found throughout the study area, resulting in potentially significant impacts for all alternatives, except the Laguna Discharge Alternative, which does not involve any construction. Proposed mitigation includes construction monitoring for vertebrate paleontologic resources, salvage, evaluation, and education, as appropriate, and will reduce impacts to a level below significance.

**Table 1-8.** Tolay and Two Rock reservoir sites have especially valuable cultural resources.

Mitigation consists of construction monitoring, avoidance, documentation, evaluation, relocation, and/or education, as

## Public Services, Utilities, and Recreation

(Refer to Chapter 4.16 of the Draft EIR/EIS.)

No significant impacts are identified for public services, except for the No Action Alternative. If the Project is not implemented, the City will not be able to supply sewage treatment and disposal in accordance with its General Plan and the existing lack of reliable capacity would continue. This is considered a significant impact.

## Energy

(Refer to Chapter 4.17 of the Draft EIR/EIS.)

Energy will be used to pump reclaimed water for all alternatives except the

### Known Cultural Resources Impacted

1 - No Action Alternative	0
2A - Tolay Extended	248
2B - Adobe /Lakeville	247
2C - Tolay Confined	235
2D - Sears Point/Lakeville	245
3A - Two Rock	232
3B - Bloomfield	203
3C - Carroll Road	197
3D - Valley Ford	191
3E - Huntley	196
4 - Geysers Recharge	52
5A - Russian River Discharge	2
5B - Laguna Discharge	0

Laguna Discharge Alternative. However, none of the alternatives has significant energy impacts. The Geysers project will generate more energy than will be used for pumping.

### Socio-economics

(Refer to Chapter 4.18 of the Draft EIR/EIS.)

Several dwelling units will be lost due to construction of the storage reservoirs; this loss is considered a significant housing impact.

A significant service charge increase (see Table 1-9) for sewage treatment would occur for users throughout the Subregional System if the South or West County Reclamation Alternatives or the Geysers Recharge Alternative is implemented. No feasible mitigation has been identified.

Demand fees (hookup fees) will also increase substantially for these same alternatives (see Table 1-10).

Due to provision of irrigation, the South and West County Reclamation Alternatives will increase the gross value of all fruit, vegetable, wine grape, and forage crops as shown in Table 1-11. Sebastopol irrigation will add even more to the value of crops, if most apple growers switched to the higher yielding new dwarf and semi-dwarf apple varieties.

The value of increased local dairy forage production will go beyond the gross crop values shown in this analysis if the ability to grow local forage and pasture ensures the long-term survival of the dairy industry in Sonoma and northern Marin counties.

**Table 1-9.** Estimate of Maximum Additional Service Charge

**Average Monthly Service Charge per Single Family Residence**

1	No Action (No Project)	0
2A	So. Co.—Tolay Extended	\$33.90
2B	So. Co.—Adobe/Lakeville	\$34.30
2C	So. Co.—Tolay Confined	\$36.70
2D	So. Co.—Lakeville/Sears Point	\$42.40
3A	W. Co.—Two Rock	\$23.70
3B	W. Co.—Bloomfield	\$25.70
3C	W. Co.—Carroll Road	\$24.60
3D	W. Co.—Valley Road	\$25.20
3E	W. Co.—Huntley	\$24.50
4	Geysers Recharge	\$74.40
5A	Russian River Discharge	\$2.20
5B	Laguna Discharge	\$0.70

**Table 1-10.** Estimate of Additional Demand Fee

**Demand Fee per Single Family Residence or Equivalent**

1	No Action (No Project)	(\$3,700)
2A	So. Co.—Tolay Extended	\$7,300
2B	So. Co.—Adobe/Lakeville	\$8,600
2C	So. Co.—Tolay Confined	\$8,700
2D	So. Co.—Lakeville/Sears Point	\$9,400
3A	W. Co.—Two Rock	\$5,100
3B	W. Co.—Bloomfield	\$6,300
3C	W. Co.—Carroll Road	\$5,000
3D	W. Co.—Valley Ford	\$5,300
3E	W. Co.—Huntley	\$5,400
4	Geysers Recharge	\$3,900
5A	Russian River Discharge	(\$1,800)
5B	Laguna Discharge	(\$2,400)

Amounts in parentheses indicate a reduction in demand fee.

**Annual Gross Production Value  
of Irrigated Crops**  
(thousands of dollars)

	Low Tech Scenario	Medium Tech Scenario	High Tech Scenario
West County	\$ 3,100	\$20,400	\$ 71,900
West County w/Sebastopol	\$52,800	\$65,500	\$102,400
South County	\$ 2,600	\$18,000	\$ 35,000
Sounth County w/Sebastopol	\$53,400	\$65,100	\$ 82,200

**Table 1-11.** *Irrigation water will greatly increase the value of fruit, vegetable, pasture, and forage crops.*

**Table 1-12.**

**Annual Net Economic Impacts**

	Impact (1,000s)	Total Employment
1 No Action (No Project)	(\$1,482,900)	(27,100)
2A So. Co.—Tolay Extended	\$120,100	3,500
2B So. Co.—Adobe/Lakeville	\$119,000	3,500
2C So. Co.—Tolay Confined	\$117,600	3,500
2D So. Co.—Lakeville/Sears Point	\$115,100	3,400
3A W. Co.—Two Rock	\$124,300	3,600
3B W. Co.—Bloomfield	\$122,900	3,600
3C W. Co.—Carroll Road	\$123,900	3,600
3D W. Co.—Valley Road	\$123,500	3,600
3E W. Co.—Huntley	\$123,800	3,600
4 Geysers Recharge	(\$38,000)	(1,100)
5A Russian River Discharge	(\$1,600)	0
5B Laguna Discharge	(\$600)	0

Amounts in parentheses indicate an adverse impact.

If the current dairy price support system remains in place, the two factors that most threaten the dairy industry in the North Bay are: the cost of feed and urban pressures that increase the price of agricultural land and opportunities for urban/agricultural conflicts. The availability of reclaimed water to dairy farmers will substantially reduce the cost of imported feeds and improve long-term viability of the dairy industry.

When the economic effects of increased agricultural value, increased expenditures for ongoing operations and maintenance, and impacts of increased service charges and demand fees are considered, the Reclamation Alternatives will generate annual net economic benefits of \$115 to \$124 million in the Sonoma and Marin county economies, including up to 3,600 new jobs (see Table 1-12).

The Geysers Alternative is projected to have the largest cost due to the high operation and maintenance costs. These costs will be partially offset by the payments by the Geysers operators for reclaimed water as well as the additional property tax revenue and royalty payments that would accrue to Sonoma County. No offers have yet been made by the Geysers operators, so this analysis does not reflect the net economic benefit to be derived from this alternative.

The Geysers Recharge and Discharge alternatives generate very little economic benefit to the region, but still generate costs. Most of the economic benefit of the Geysers Recharge Alternative goes outside the Sonoma and Marin economies. The socio-economic analysis

shows that impacts on Russian River tourism of increased discharge are primarily dependent upon publicity regarding the discharge, rather than the discharge itself, and are therefore unpredictable.

If the Project is not implemented, that is, the No Action Alternative is chosen, it is likely that the North Coast Regional Water Quality Control Board will prevent further sewage hookups after December 1997, thereby creating a building moratorium. The economic analysis indicates that some 27,100 future jobs and 28,200 future housing units will be lost. Overall, the economic impact of the No Action Alternative will be greater than a loss of future jobs and houses; the income growth of existing residents and workers will be adversely impacted, as well.

#### Inundation Due to Dam Failure (Refer to Chapter 4.19 of the Draft EIR/EIS.)

The potential for dam failure caused by a seismic event, unstable slope conditions, or damage from corrosive or expansive soils is extremely remote. The California Department of Water Resources, Division of Safety of Dams is the regulatory agency with jurisdiction over the design, construction, and operation of dams in California to prevent failure and to safeguard life and protect property. California currently has the most stringent dam safety design and construction review standards in the country, and adherence to these standards greatly reduces the probability of dam failure and is protective of public safety. Since the Division of Safety of Dams was established, three notable dam failures

have occurred in California, and only one (Baldwin Hills Reservoir in 1963) resulted in loss of life.

Subsequent to the San Fernando earthquake of 1971, where the Lower Van Norman Dam was damaged, but did not fail, a seismic inspection and rehabilitation program was instituted. During the Loma Prieta earthquake, several dams were damaged, but no uncontrolled releases of water occurred. Current standards for dam construction are even more strict than the standards for any of the dams that have failed.

The dam and reservoir design will virtually eliminate the possibility of failure by the major causes of dam failure. Overtopping will be preempted because dams will be sited in small tributary watersheds and spillways will be sized to accommodate the probable maximum flood. The possibility of foundation failure will be greatly reduced by construction on a bedrock foundation and installation of an internal drainage system. During operation, the reservoirs will be visually inspected on a regular basis to ensure that the embankments, control structures, access roads, and monitoring instrumentation are maintained. All impediments will be removed from the spillway and other control structures as soon as they are observed.

In the highly unlikely event of a catastrophic dam failure, all reservoirs have housing or facilities within their projected inundation area, which will be flooded and/or destroyed.

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
Land Use														
1.5.3. The storage reservoir component may be an incompatible land use type in a designated quarry area.			⊙			●								2.4.1. Removal of aggregate resources prior to construction.
1.6.7. The pump station component may convert public open space for project facilities.											⊙			2.3.1. Replacement of open space easements.
Agriculture														
2.5.1. The storage reservoir component may cause loss of farmland.		●	●	●		●								No feasible mitigation has been identified.
2.5.2. The storage reservoir component may cause Williamson Act contracts to be canceled.							●			●				No feasible mitigation has been identified.
2.6.1. The pump station component may cause loss of farmland.		●	●	●	●	●	●	●	●	●	●			No feasible mitigation has been identified.
2.7.3. The agricultural irrigation component may reduce agricultural soil productivity due to erosion of topsoil.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.2 Restrict approval of agricultural irrigation contracts. 2.3.3. Agricultural Irrigation Demonstration Program
Geology, Soils, and Seismicity														
3.4.1. The pipeline component may be located within an area of unstable slope conditions.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	●			2.3.4. Slope Stabilization Design 2.3.7. Slope Monitoring and Response System 2.3.8. Earthquake Preparedness and Emergency Response Plan
3.4.2. The pipeline component may be subject to ground rupture due to location near the surface trace of an active fault.		●	●	●	●	●	●	●	●	●	●			2.3.8. Earthquake Preparedness and Emergency Response Plan



**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
3.4.3. The pipeline component may be located in areas with soils and groundwater conditions that are susceptible to liquefaction during an earthquake.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		2.3.5. Liquefaction Stabilization Design
3.4.7. The pipeline component may be exposed to damage due to expansive soils.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			2.4.8. Standard Engineering Methods for Expansive Soils
3.4.8. The pipeline component may be exposed to damage due to corrosive soils.		⊙	⊙	⊙	⊙									2.3.6. Standard Engineering Methods for Corrosive Soils
3.5.1. The storage reservoir component may be located within an area of unstable slope conditions.		●	●	●	●									2.3.4. Slope Stabilization Design 2.4.2. Remove weak surficial deposits from reservoir footprint.
3.5.7. The storage reservoir component may be exposed to damage due to expansive soils.		⊙	⊙	⊙	⊙									2.4.2. Remove weak surficial deposits from reservoir footprints. 2.4.3. Standard Engineering Methods for Expansive Soils
3.6.3. The pump stations component may be located in areas with soils and groundwater conditions that are susceptible to liquefaction during an earthquake.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			2.3.5. Liquefaction Stabilization Design
3.6.7. The pump stations component may be exposed to damage due to expansive soils.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			2.4.3. Standard Engineering Methods for Expansive Soils
3.7.8. The agricultural irrigation component may be exposed to damage due to corrosive soils. Bay flats and Lakeville irrigation areas.		⊙	⊙	⊙	⊙									2.3.6. Standard Engineering Methods for Corrosive Soils
3.8.1 The geysers steamfield component may be located in an area of unstable slope conditions											⊙			2.3.4 Slope Stabilization Design

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
3.9.3. The discharge component may be located in areas with soils and groundwater conditions that are susceptible to liquefaction during an earthquake.												⊙		2.3.5. Liquefaction Stabilization Design
<b>Surface Water Hydrology</b>														
4.4C The Project plus cumulative projects may cause a cumulative increase in the maximum flood elevation in the Russian River.	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	2.5.10. Discharge prohibition during flood state is proposed to mitigate for the project's contribution to a flooding impact.
<b>Groundwater</b>														
5.5.1. The storage reservoir component may degrade groundwater quality at existing wells, resulting in public health hazards.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.12. Provide replacement water supply for affected wells.
5.5.2. The storage reservoir component may degrade groundwater quality at future drinking water wells, resulting in a public health hazard.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.12. Provide replacement water supply for affected wells.
5.5.3. The storage reservoir component may cause groundwater mounding or increase groundwater levels that cause surface discharge in a non-stream environment.							⊙	⊙	⊙	⊙				2.5.9. Implement a septic system monitoring and replacement program.
5.5.4. The storage reservoir component may lower groundwater levels at existing wells.			⊙		⊙	⊙	⊙	⊙	⊙	⊙				2.3.13. Monitor groundwater levels and provide replacement water supply.
5.5.5. The storage reservoir component may lower groundwater levels in areas that could have been developed for future water supply.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.13. Monitor groundwater levels and provide replacement water supply.

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation					West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B		
Surface Water Quality															
6.5.1. Ammonia. The storage reservoir component may cause numeric-based criteria to be exceeded.		☉		☉	☉	☉	☉	☉	☉	☉				2.5.3 Control program for hydrogen sulfide, ammonia, and dissolved oxygen.	
6.5.1. Dissolved oxygen. The storage reservoir component may cause numeric-based criteria to be exceeded.		☉		☉	☉	☉	☉	☉	☉	☉				2.5.3 Control program for hydrogen sulfide, ammonia, and dissolved oxygen.	
6.5.1. Hydrogen sulfide. The storage reservoir component may cause numeric-based criteria to be exceeded.		☉		☉	☉	☉	☉	☉	☉	☉				2.5.3 Control program for hydrogen sulfide, ammonia, and dissolved oxygen.	
6.5.3. Salinity, ammonia, dissolved oxygen, planktonic algae, benthic algae, and metals. The storage reservoir component may cause special-site criteria to be exceeded.						●	●	●	●	●				No feasible mitigation has been identified.	
6.7.1. Dissolved copper. Agricultural irrigation may cause numeric-based criteria to be exceeded.						☉	☉	☉	☉	☉				2.5.2 Control program for dissolved copper levels in West County creeks.	
6.7.3. Salinity, ammonia, dissolved oxygen, planktonic algae, benthic algae, and metals. The agricultural irrigation may cause the special site criterion to be exceeded.						●	●	●	●	●				No feasible mitigation has been identified.	
6.9.1. Conductivity. Discharge component may cause numeric-based criteria to be exceeded.												●		No feasible mitigation has been identified.	
6.9.1. Cyanide. Discharge component may cause numeric-based criteria to be exceeded.	●												☉	2.5.5. Cyanide Monitoring and Source Control Program	
6.9.1. Dissolved oxygen. Discharge component may cause numeric-based criteria to be exceeded.													●	No feasible mitigation has been identified.	

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
6.9.2. Algal growth. Design discharge component may cause narrative-based criteria to be exceeded.	●	●	●	●	●	●	●	●	●	●	●	●	●	2.5.4 Discharge Operations
6.9.2. Algal growth (beneficial) Discharge scenarios may cause narrative-based criteria to be exceeded.	+	+	+	+	+	+	+	+	+	+	+	+	+	None required.
6.9.2. Turbidity. Discharge scenarios may cause narrative-based criteria to be exceeded.												●	●	2.5.4 Discharge Operations
6.9.2. Turbidity (beneficial). Discharge scenarios may cause narrative-based criteria to be exceeded.	●												⊙	None required.
6.9.2. Waste Reduction Strategy - Ammonia-Nitrogen. Discharge scenarios may cause narrative-based criteria to be exceeded.	●												⊙	2.5.6 Total and Ammonia Nitrogen Source Control Program
6.9.2. Waste Reduction Strategy - Total Nitrogen. Discharge scenarios may cause narrative-based criteria to be exceeded.	●												⊙	2.5.6 Total and Ammonia Nitrogen Source Control Program
6.9.2. Toxicity. Discharge component may cause narrative-based criteria to be exceeded.	●												⊙	2.5.7. Toxicity Control Program
Public Health and Safety														
7.4.2. The pipeline component may be constructed on or within a known hazardous waste site.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			2.3.15. Construction Management Program
7.5.1. The storage reservoir component may expose the public to chemical, radionuclides, or pathogens at concentrations detrimental to human health.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.12. Provide replacement water supply for affected wells.
7.5.6. The storage reservoir component may increase the potential exposure of the public to disease vectors.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.16. Mosquito Prevention Program
7.6.2. The pump station component may be constructed on or within a known hazardous waste site.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			2.3.15. Construction Management Program

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
7.7.2. The agricultural irrigation component may expose workers or the public to hazards from a known hazardous waste site.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.15. Construction Management Program
7.8.2. The geysers steamfield component may expose workers or the public to hazards from a known hazardous waste site.											⊙			2.3.15. Construction Management Program
<b>Terrestrial Biological Resources</b>														
8.5.3. Storage reservoir component may cause loss of active raptor nest sites.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.4.5. Active Raptor Nest Location and Monitoring Program
8.5.5. Storage reservoir component may cause loss of sensitive native terrestrial plant communities.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.11. Sensitive Resource Conservation Program
8.9.5. Discharge component may cause permanent loss of sensitive native terrestrial plant communities												⊙		2.3.11. Sensitive Resource Conservation Program
8.2C. The Project plus cumulative projects may cause a loss of individuals of CNSPS List 2, 3, or 4 terrestrial plant species.						⊙				⊙				2.4.15. Sensitive Plant Translocation Program
8.4C. The Project plus cumulative projects may cause permanent loss of sensitive terrestrial wildlife habitat.		●	●	●	●	●	●	●	●	●				No feasible mitigation has been identified.
8.7C. The Project plus cumulative projects may result in ecological risk to terrestrial plant and wildlife populations (i.e., acute or chronic toxicity and bioaccumulation).	●	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		⊙	2.4.16. Ecological Risk Monitoring and Source Control Program

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
Aquatic Biological Resources														
9.5.1. The storage reservoir component may cause loss of individuals or occupied habitat of endangered, threatened, or rare aquatic wildlife or plant species.		⊙	⊙	⊙	⊙	⊙	⊙		⊙	⊙				2.3.11. Sensitive Resource Conservation Program 2.4.4. California Red-legged Frog Capture and Relocation Program
9.5.3. The storage reservoir component may cause loss of potential or occupied habitat of aquatic species of concern.		⊙		⊙										2.3.11. Sensitive Resource Conservation Program
9.5.4. The storage reservoir component may cause permanent loss of sensitive aquatic plant communities and associated wildlife habitats.						⊙								2.3.11. Sensitive Resource Conservation Program
9.5.5. The storage reservoir component may cause permanent loss of aquatic habitat.		⊙	⊙	⊙	⊙			⊙						2.3.11. Sensitive Resource Conservation Program
9.5.6. The storage reservoir component may cause a change in the physical condition of aquatic habitat in the Estero Americano or the Estero de San Antonio within the Gulf of the Farallones National Marine Sanctuary.						●	●	●	●	●				No feasible mitigation has been identified.
9.5.8. The storage reservoir component may cause a change in stream flows, affecting aquatic habitat or aquatic life downstream from proposed dam sites.		⊙	⊙	⊙	⊙		⊙	⊙	⊙					2.3.11. Sensitive Resource Conservation Program
9.7.6. The storage reservoir component may cause a change in the physical condition of aquatic habitat in the Estero Americano or the Estero de San Antonio within the Gulf of the Farallones National Marine Sanctuary.						●	●	●	●	●				No feasible mitigation has been identified.
9.2C. The cumulative projects may cause a loss of individuals of CNPS List 2, 3, or 4 aquatic plant species.										⊙				2.4.15. Sensitive Plant Relocation Program

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
9.9C. The Project plus cumulative projects may result in ecological risk to aquatic plant and wildlife populations (i.e., acute or chronic toxicity and bioaccumulation).	⊙											⊙	⊙	2.4.16. Ecological Risk Monitoring and Source Control Program
<b>Jurisdictional Wetlands Resources</b>														
10.4.1. The pipeline component may destroy wetlands or other waters of the U.S.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		2.3.10 Limit Construction Disturbance
10.5.1. The storage reservoir component may destroy wetlands or other waters of the U.S.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.11 Sensitive Resource Conservation Program
10.9.1. The discharge component may destroy wetlands or other waters of the U.S.												⊙		2.3.11 Sensitive Resource Conservation Program
<b>Transportation</b>														
11.4.1. Traffic from construction or operations of the pipeline component may cause congestion along access roads		●	●	●	●	●	●	●	●	●	●			No feasible mitigation has been identified.
11.4.2. Lane closures due to construction of the pipeline component may delay traffic, delay transit services, restrict access, increase hazards, and reroute traffic, including emergency vehicles.		●	●	●	●	●	●	●	●	●	●	●		No feasible mitigation has been identified.
11.4.4. The pipeline component may cause damage to public or private roadbeds.											●			No feasible mitigation has been identified.
11.5.1. Traffic from construction or operation of the storage reservoir component may cause congestion on access roads.		●	●	●	●	●	●	●	●	●				No feasible mitigation has been identified.



**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
11.8.1. Traffic from construction of the geysers steamfield component may cause congestion on access roads.											●			No feasible mitigation has been identified.
<b>Air Quality</b>														
12.2.3. The headworks expansion component may exceed trigger toxic emissions levels.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	A screening level health risk assessment determined perchloroethylene levels will be less than significant.
12.2.5. The headworks expansion component may cause odors.	●	●	●	●	●	●	●	●	●	●	●	●	●	No feasible mitigation has been identified.
12.4.1. The pipeline component may exceed emission threshold levels.		●	●	●	●	⊙	⊙	⊙	⊙	⊙	⊙			2.4.1 Dust Control Program 2.4.10 Vehicle and Equipment Exhaust Control Program
12.5.1. The storage reservoir component may exceed emission threshold levels.		●	●	●	●	●	●	●	●	●				2.4.10 Vehicle and Equipment Exhaust Control Program 2.4.11 Dust Control Program
12.8.1. The geysers steamfield component may exceed emission threshold levels.											●			2.4.10 Vehicle and Equipment Exhaust Control Program
<b>Noise</b>														
13.4.1. Construction of pipeline component may expose the public to high noise levels.		●	●	●	●	●	●	●	●	●	●	●		2.4.9. Construction Noise Control Measures
13.4.3. Construction of the pipeline component may cause high noise levels from the construction traffic.		●	●	●	●	●	●	●	●	●	●	●		2.4.9. Construction Noise Control Measures
13.5.1. Construction of the storage reservoir component may expose the public to high noise levels.		⊙	●	⊙	●	●				●				2.4.9. Construction Noise Control Measures

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
13.5.3. Construction of the storage reservoir component may cause high noise levels from the construction traffic.		●	●	●	●	●	●	●	●	●				2.4.9. Construction Noise Control Measures
13.6.1. Construction of the pump station component may expose the public to high noise levels.		●	●	●	●	●	●	●	●	●	●			2.4.9. Construction Noise Control Measures
13.6.2. Operation of the pump station component may expose the public to high noise levels.		●	●	●	●	●	●	●	●	●	●			2.3.17. Incorporate noise control measures into the final design of the pump station.
13.7.1. Construction of the agricultural irrigation component may expose the public to high noise levels.		●	●	●	●	●	●	●	●	●				2.4.9. Construction Noise Control Measures
13.8.3. Construction of the Geysers steamfield component may cause high noise levels from construction traffic.											●			No feasible mitigation has been identified.
<b>Visual Resources</b>														
14.4.1. The pipeline component may be inconsistent with the Sonoma County General Plan Open Space Element regarding Community Separator Areas.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			2.3.10. Limit construction disturbance.
14.4.2. The pipeline component may be inconsistent with the Sonoma County General Plan Open Space Element regarding Scenic Landscape Units.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		2.3.9. Adjust pipeline alignments. 2.3.10. Limit construction disturbance.
14.4.3. The pipeline component may be inconsistent with the Sonoma County or city General Plans regarding designated Scenic Corridors.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		2.3.9. Adjust pipeline alignments. 2.3.10. Limit construction disturbance.

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
14.4.5. The pipeline component may cause adverse effects on foreground or middleground views from a high volume travelway, recreation use area, or other public use area.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	●	⊙		2.3.9. Adjust pipeline alignments. 2.3.10. Limit construction disturbance.
14.4.6. The pipeline component may cause an adverse effect on foreground or middleground views from one or more private residence.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		2.3.9. Adjust pipeline alignments. 2.3.10. Limit construction disturbance.
14.5.2. The storage reservoir component may be inconsistent with the Sonoma County General Plan Open Space Element regarding Scenic Landscape Units.			⊙											2.4.6. Screen concrete diversion channels, pump stations, and other facilities. 2.4.7. Establish tree screening. 2.4.8. Revegetate face of reservoir dam.
14.5.3. The storage reservoir component may be inconsistent with the County Open Space Element regarding Scenic Corridors.		●					●	●	●					2.4.6. Screen concrete diversion channels, pump stations, and other facilities. 2.4.7. Establish tree screening. 2.4.8. Revegetate face of reservoir dam.
14.5.5. The storage reservoir component may cause adverse effects on foreground or middleground views from a high volume travelway, recreation use area, or other public use area.			⊙		●		⊙			⊙				2.4.6. Screen concrete diversion channels, pump stations, and other facilities. 2.4.7. Establish tree screening. 2.4.8. Revegetate face of reservoir dam.
14.5.6. The Storage reservoir component may cause an adverse effect on foreground or middleground views from one or more private residences.		●	●	●	●	●	●	●	●	⊙				2.4.6. Screen concrete diversion channels, pump stations, and other facilities. 2.4.7. Establish tree screening. 2.4.8. Revegetate face of reservoir dam.
14.6.2. The pump station component may be inconsistent with the Sonoma County General Plan Open Space Element regarding Scenic Landscape Units.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	●			2.4.6. Screen concrete diversion channels, pump stations, and other facilities.

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
14.6.3. The pump station component may be inconsistent with the County Open Space Element regarding Scenic Corridors.		●	●	●	●	●	●	●	●	●	●			2.4.6. Screen concrete diversion channels, pump stations, and other facilities.
14.6.4. The pump station component may be inconsistent with minimum building setbacks for structures along Sonoma County designated scenic corridors.		●	●	●	●	●	●	●	●	●	●			2.4.6. Screen concrete diversion channels, pump stations, and other facilities.
14.6.5. The pump station component may cause adverse effects on foreground or middleground views from a high volume travelway, recreation use area, or other public use area.		●	●	●	●	●	●	●	●	●	●			2.4.6. Screen concrete diversion channels, pump stations, and other facilities.
14.6.6. The pump station component may cause an adverse effect on foreground or middleground views from one or more private residences.		●	●	●	●	●	●	●	●	●	●			2.4.6. Screen concrete diversion channels, pump stations, and other facilities.
<b>Cultural Resources and Paleontology</b>														
15.4.1. The pipeline component may disturb known potentially eligible National Register properties, including archaeological, historical, architectural, and Native American/traditional heritage resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		2.3.18. Identification, evaluation, and avoidance of cultural resources.
15.4.2. The pipeline component may disturb unknown archaeological resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		2.4.12. Protect undiscovered cultural resource sites.
15.4.3. The pipeline component may disturb unknown vertebrate paleontologic resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		2.4.13 Protect vertebrate paleontologic resources.

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
15.5.1. The storage reservoir component may disturb known potentially eligible National Register properties, including archaeological, historical, architectural, and Native American/traditional heritage resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.18. Identification, evaluation, and avoidance of cultural resources.
15.5.2. The storage reservoir component may disturb unknown archaeological resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.4.12. Protect undiscovered cultural resource sites.
15.5.3. The storage reservoir component may disturb unknown vertebrate paleontologic resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.4.13. Protect vertebrate paleontologic resources.
15.6.1. The pump station component may disturb known potentially eligible National Register properties, including archaeological, historical, architectural, and Native American/traditional heritage resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			2.3.18. Identification, evaluation, and avoidance of cultural resources.
15.6.2. The pump station component may disturb unknown archaeological resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			2.4.12. Protect undiscovered cultural resource sites.
15.6.3. The pump station component may disturb unknown vertebrate paleontologic resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.4.13. Protect vertebrate paleontologic resources.
15.7.1. The agricultural irrigation component may disturb known potentially eligible National Register properties, including archaeological, historical, architectural, and Native American/traditional heritage resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.3.18. Identification, evaluation, and avoidance of cultural resources.
15.7.2. The agricultural irrigation component may disturb unknown archaeological resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.4.12. Protect undiscovered cultural resource sites.
15.7.3. The agricultural irrigation component may disturb unknown vertebrate paleontologic resources.		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2.4.13. Protect vertebrate paleontologic resources.

**Table 1-13**

Summary of Significant Impacts and Mitigation

Impact	No Action	South County Irrigation				West County Irrigation					Geysers	Discharge		Mitigation Measures
	1	2A	2B	2C	2D	3A	3B	3C	3D	3E	4	5A	5B	
15.8.1. The geysers steamfield component may disturb known potentially eligible National Register properties, including archaeological, historical, architectural, and Native American/traditional heritage resources.											⊙			2.3.18. Identification, evaluation and avoidance of cultural resources.
15.8.2. The geysers steamfield component may disturb unknown archaeological resources.											⊙			2.4.12. Protect undiscovered cultural resource sites.
15.9.2. The discharge component may disturb unknown archaeological resources.												⊙		2.4.12. Protect undiscovered cultural resource sites.
15.9.3. The discharge component construction may disturb unknown vertebrate paleontologic resources.												⊙		2.4.13. Protect vertebrate paleontologic resources.
<b>Public Services, Utilities and Recreation</b>														
16.1.1. The No Action Alternative may increase demand for public services such that accepted service standards are not maintained.	●													None.
16.4.2. The pipeline component may public services such that accepted service standards are not maintained.		●	●	●	●	●	●	●	●	●	●	●		2.4.9. Construction Noise Control. 2.4.14. Coordinate fire response service.
<b>Energy</b>														
There are no significant impacts.														
<b>Socio-economics</b>														
18.1. The Project may increase the service charge for wastewater.		●	●	●	●	●	●	●	●	●	●			No feasible mitigation has been identified.
18.2. The Project may result in loss of homes due to construction of facilities.		●	●			●		●	●	●				No feasible mitigation has been identified.

Note: No mitigation is proposed for the significant impacts of the No Action Alternative. **Alternatives:**

**Level of Significance:**

- ⊙ Significant impact before mitigation; less than significant impact after mitigation
- Significant impact before and after mitigation
- + Beneficial impact

**Alternatives:**

- 1 No Action (No Project)
- 2A Tolay Extended
- 2B Adobe Road/Lakeville Hillside
- 2C Tolay Confined

- 2D Sears Point/Lakeville Hillside
- 3A Two Rock
- 3B Bloomfield
- 3C Carroll Road
- 3D Valley Ford
- 3E Huntley
- 4 Geysers Recharge
- 5A Discharge to Russian River
- 5B Discharge to the Laguna



# 1.10 NEPA/CEQA REQUIRED SECTIONS *(Refer to Chapter 5 of the Draft EIR/EIS.)*

## Growth-inducing Impacts *(Refer to Chapter 5.3 of the Draft EIR/EIS.)*

Growth inducement is defined by the CEQA Guidelines as a project’s potential for fostering of economic or population growth or the construction of new housing. Growth inducement may result from direct employment, population, or housing growth; secondary or indirect growth; or provision of new infrastructure which removes obstacles to growth.

As shown in Table 1-14, the maximum contribution of any of the Project alternatives toward growth of employment, housing, or population is small compared to the total growth expected in Sonoma County over the life of the Project. Therefore, none of the Project alternatives is growth-inducing with regard to employment, housing, or population.

The primary types of infrastructure which are potentially growth-inducing are roads, communication facilities,

sewage treatment capacity, and water supply facilities. The Project alternatives do not include substantial improvements in either transportation or communications facilities.

The new sewage treatment and disposal capacity supplied by this Project responds directly to the growth approved in each of the member jurisdictions’ general plans. Capacity will increase from 18 mgd to 21 mgd average dry weather flow. Experts disagree about the growth-inducing effect of such an expansion. Certainly, a primary obstacle to growth is being removed by provision of the increased capacity. However, the Project is not the engine driving the growth. The healthy regional economy, local resources, and existing labor force, together with the desire of the population as expressed in the General Plans, are responsible for the economic growth of the region. From this perspective, the Project accommodates growth trends rather than inducing growth on its own.

One of the mitigation measures will supply new potable water to parcels downgradient of the storage reservoirs, if their groundwater is shown to be affected by the reservoir. At maximum, 84 parcels will receive a new water supply. All such parcels will have to be consistent with the Sonoma County General Plan and applicable zoning, therefore this secondary impact is growth-accommodating rather than growth-inducing.

**Table 1-14.**  
*Growth resulting from the Project is a fraction of the growth already expected in the healthy local economy.*

Growth-inducing Factors	Maximum Contribution of a Project Alternative	Expected Growth in Sonoma County over the Life of the Project
Total employment	3,700	78,300
Housing units	2,400	25,900
Population	5,800	44,800

## Environmentally Superior Alternative

*(Refer to Chapter 5.5 of the Draft EIR/EIS.)*

The California Environmental Quality Act requires the identification of an Environmentally Superior Alternative; that is, the alternative which has no significant effect or has the least significant effect on the environment. For reference, significance is determined based on substantial or potentially substantial adverse changes of any of the physical conditions due to the Project. The degree of change is evaluated against existing environmental conditions.

The environmentally superior alternative is Alternative 5B, the Laguna Discharge Alternative. This alternative causes the least change on the environment when compared with the other alternatives. This alternative does not impact wetlands and does not require the construction of new facilities which change the existing environment. This alternative discharges reclaimed water to the Laguna de Santa Rosa which flows to the Russian River near the Sonoma County Water Agency water collection system. The unavoidable effects of Laguna Discharge include a further decrease of dissolved oxygen in the Laguna de Santa Rosa and an increase in biostimulatory substances, as measured by benthic and planktonic algae, in the Laguna de Santa Rosa and Russian River. All but one of these unavoidable impacts occur in less than one month every eight years. The unavoidable impact on benthic algae occurs in the lower-most quarter-mile reach of Santa Rosa Creek more frequently, however beneficial impacts

on algae will occur more frequently than adverse impacts. With implementation of mitigation and cumulative projects (including nitrogen load reduction throughout the Laguna), Alternative 5B would have a less than significant impact.

The No Action Alternative is similar to Alternative 5B. This alternative has greater water quality impacts, because it does not provide mitigation included in the other alternatives. The No Action Alternative not only impacts biostimulatory substances and dissolved oxygen similarly to the Laguna Discharge, but also causes exceedance of standards for cyanide and toxicity, and non-attainment of the Regional Board's Waste Reduction Strategy.

The reclamation alternatives and the Geysers Alternative have fewer water quality impacts on the Russian River. However, these alternatives require physical changes to the existing environment which cause significant and unavoidable effects on other resources within Sonoma and Marin counties.

Although Alternative 5B is considered environmentally superior (as defined above), any conclusion regarding the environmentally superior alternative should not be confused with an analysis of how each alternative may achieve the Project's purpose and need. The Draft EIR/EIS has noted beneficial effects of the alternatives, including increased prime farmland, generation of electricity, and economic stimulation. The City will consider and weigh these benefits and

the environmental effects against the purpose and need of the project during the selection of the preferred Project.

The National Environmental Policy Act requires the identification of the Environmentally Preferable Alternative from the range of alternatives considered in the Record of Decision. The environmentally preferable alternative is the alternative that will promote the National Environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects,

preserves, and enhances historic, cultural, and natural resources. The environmentally preferable alternative also balances population and resources and enhances the quality of renewable resources.

At this time the Corps has not selected the environmentally preferable alternative, nor has the City selected its preferred alternative. After certification of the Final EIR, the City will consider and select the preferred alternative. At that time, the Final EIS will be prepared which will identify both the environmentally preferable alternative and the preferred alternative.

## 1.11 RANGE OF DISCHARGE EVALUATION

*(Refer to Appendix A, Volume III of the  
Draft EIR/EIS)*

As a means of evaluating the range of design discharge rates between 1% and 20% of river flow, the Range of Discharge Evaluation Appendix focuses on impacts resulting from design discharge rates of 5%, 10%, and 15% in relation to impacts from the 1% design discharge rate analyzed in the main body of the Draft EIR/EIS. These intermediate rates represent benchmarks within the range of design discharge rates greater than 1% but less than 20%. All of the discharges would be directly to the Laguna.

### Description of Project Alternatives for Intermediate Discharge Rates

The average annual volume of reclaimed water discharged to the Laguna under intermediate discharge options is shown in Table 1-15.

Intermediate rates of discharge would reduce the requirement for reclaimed water storage and agricultural irrigation acreage by approximately 30 percent for a 5% discharge rate; 50 percent for a 10% discharge rate; and 75% for a 15% discharge rate. The reduction in storage requirements would mean that smaller pipelines could be built and smaller pumps could be provided at pump stations. With reductions in agricultural irrigation acreage, the length of pipeline and number of pump stations could also be reduced, although the actual reductions cannot be determined at this time

because it is unknown which eligible properties will actually be irrigated. Consequently, the proposed irrigation acreage must be larger than theoretically required, and agricultural irrigation may occur in any of the irrigation areas.

Based upon the reduced storage requirements for the intermediate discharge rates, three alternatives would be eliminated from consideration. The Tolay Expanded reservoir (Alternative 2A) would be eliminated under the 10% and 15% discharge options because the reservoir would be too shallow to operate effectively.

Under each of the intermediate discharge rates, the reduced storage requirement allows the Adobe Road and Sears Point reservoirs to be large enough to serve the Project by themselves (rather than combining with Lakeville Hillside reservoir as in alternatives 2B and 2D). In addition, the storage requirement for a 15% discharge rate allows the Lakeville Hillside site to be large enough to serve the Project by itself.

Other Project components would not change under any of the intermediate discharge options.

### Impacts of Intermediate Discharge Rates

The decrease in the size of the reservoirs due to reduced storage requirements would not result in a substantial change in impacts. Because the reservoirs are sited in valleys, the reduction in volume does not result in a proportional decrease in either dam height or water elevation. The area under construction

<b>Volume of Reclaimed Water Discharge</b>	
<b>Design Discharge Rate</b> (as a Proportion of Russian River Flow)	<b>Average Volume of Reclaimed Water Discharged to Laguna</b> (October 1–May 14)
1 Percent	685 million gallons
5 Percent	1,825 million gallons
10 Percent	2,740 million gallons
15 Percent	3,490 million gallons
No Project	3,245 million gallons
Existing Conditions	3,735 million gallons
20 Percent	4,640 million gallons
The average volume of the Russian River from October 1 to May 14	341,000 million gallons

**Table 1-15.**

for a reservoir, which is the primary determinant for impacts, would not change substantially under any of the discharge options. Similarly, the reduction in size of pipelines or size of pumps in pump stations would not result in a smaller construction zone or level of construction activity. There would be some reduction in the operational noise level at pump stations, but not to a level less than significant.

The decrease in agricultural irrigation would result in decreased length of pipeline and number of pump stations. It is likely environmental impacts would also be reduced. However, because the actual properties to be irrigated are not known at this time for any of the discharge options, it is not possible fully to determine the degree of reduced impacts. Thus, even though the reduction in irrigated acreage for Alternative 2, South County, would be approximately 30 percent under a 5% option and nearly 60 percent under a 10% option, the reductions in some impacts would

not necessarily be reduced proportionately, and depending on the actual location and characteristics of the properties to be irrigated, could be substantially more or less than the reduction in the total irrigation acreage. The significant impact of agricultural irrigation with regard to the numerical standard for dissolved copper for Alternative 3 (West County) would be avoided by the 5%, 10%, and 15% options. However, significant impacts on the esteros would not be avoided by any of the reduced irrigation options.

The elimination of a second reservoir for Alternatives 2B and 2D would eliminate impacts associated with that site including pipelines leading to the site as well as the pump station at the dam. Impacts for alternatives 2B and 2D, with only one reservoir each, would be reduced but not eliminated.

The increased river discharge (relative to a one percent design discharge) would not require a change in the size or location of the outfall structure in the Laguna. The increased discharge would increase impacts on the Laguna and Russian River related to streambank erosion, flooding, and water quality. However, the increases would not be sufficient to change the level of impacts from less than significant to significant for any of the Surface Water Hydrology criteria. Mitigation of the 5%, 10%, and 15% discharge options would not avoid significant adverse water quality impacts, but the cumulative projects scenario (nitrogen load reduction) combined with mitigation would avoid significant impacts. Study and control of aluminum in Santa Rosa reclaimed water would mitigate the only significant adverse cumulative impact.