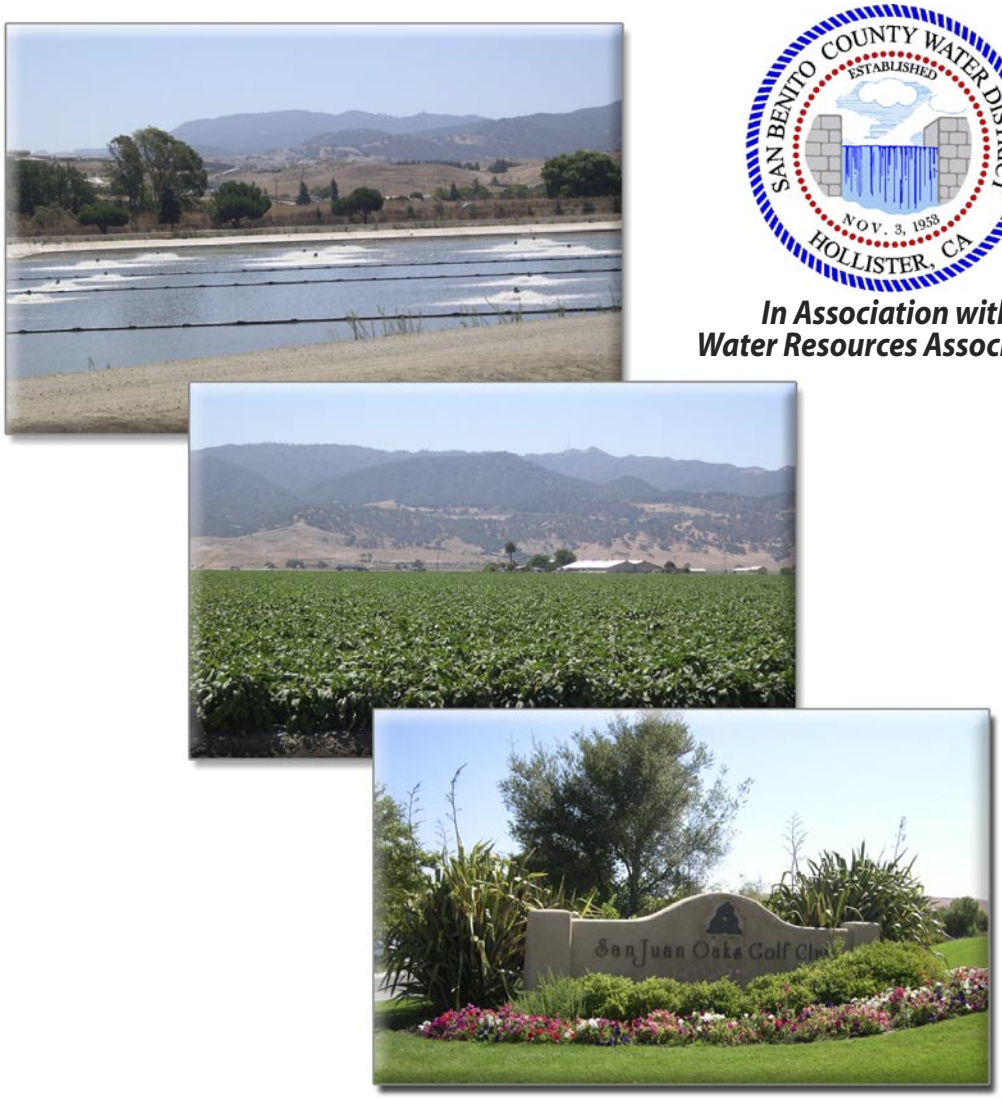
APPENDIX E – Recycled Water Documents



In Association with
Water Resources Association

San Benito County
Regional Recycled Water Project

Feasibility Study Report

May 2005

RMC
Water and Environment

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Abbreviations

Abbreviation	Definition
ACOE	Army Corp of Engineers
ADWF	Average Dry Weather Flow
AF	Acre-foot (feet)
AFY	Acre-feet per year
BOD	Biochemical Oxygen Demand
CCI	Construction Cost Index
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CCR	California Code of Regulations
CSA	County Service Areas
CTR	California Toxics Rule
CVP	Central Valley Project
DAF	Dissolved Air Flotation
DFG	(California) Department of Fish and Game
DHS	(California) Department of Health Services
DO	Dissolved Oxygen
DWR	(California) Department of Water Resources
EC	Electrical Conductivity
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
Ft	Foot (feet)
gpm	Gallons per minute
GW	Groundwater
Hollister	City of Hollister
HRT	Hydraulic Retention Time
kg/day	kilograms per day
MBR	Membrane Bioreactor
MF	Microfiltration
mg/L	milligrams per liter
MG	Million gallons
MGD	Millions of gallons per day
M&I	Municipal and Industrial
mmhos/cm	milliohms per centimeter
MOU	Memorandum of Understanding
MPN	Most Probable Number (bacteriological quality)
N/A	Not Applicable
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System

Abbreviation	Definition
NTU	Nephelometric Turbidity Units
O&M	Operation and Maintenance
Project	Regional Recycled Water Project
psi	Pounds per square inch
RMC	Raines, Melton and Carella, Inc.
RO	Reverse Osmosis
RWQCB	(Central Coast) Regional Water Quality Control Board
SAR	Sodium Adsorption Ratio
SBC	San Benito County
SBCWD	San Benito County Water District
SBR	Sequencing Batch Reactor
San Juan Bautista	City of San Juan Bautista
SJV	San Juan Valley
SSCWD	Sunnyslope County Water District
SWRCB	(California) State Water Resources Control Board
TDS	Total Dissolved Solids
TM	Technical Memorandum
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
UC	University of California
USBR	United States Bureau of Reclamation
USFWS	United States Fish and Wildlife Service
UV	Ultraviolet
WDR	Waste Discharge Requirement
WWTP	Wastewater Treatment Plant

Executive Summary

Executive Summary

The Water Resources Association of San Benito County (WRA), in partnership with the SBCWD, has adopted a Groundwater Management Plan for North San Benito County. That Plan identified water recycling as one of the tools that would enable the region to achieve the goals established by stakeholders in that regional planning effort.

Regional Recycled Water Project Goals

- **Enhance Water Supply/Reliability**
- **Improve Water Supply Quality**
- **Support Wastewater Management**
- **Protect Groundwater Quality**
- **Reduce Basin Salt Loading**
- **Provide Tool to Manage Groundwater Levels**

In July 2003, SBCWD, in association with the WRA, received a grant from the State Water Resources Control Board, Office of Water Recycling to investigate the feasibility of developing a regional recycled water supply in the northern area of the County. This Feasibility Study is the first step in this investigation. This Feasibility Study was conducted with significant interaction with partner agencies, including the Cities of Hollister and San Juan Bautista and the Sunnyslope County Water District (SSCWD), San Benito County, and grower and development interests in northern San Benito County. The recommended regional water recycling strategy discussed herein is a culmination of these interactions.

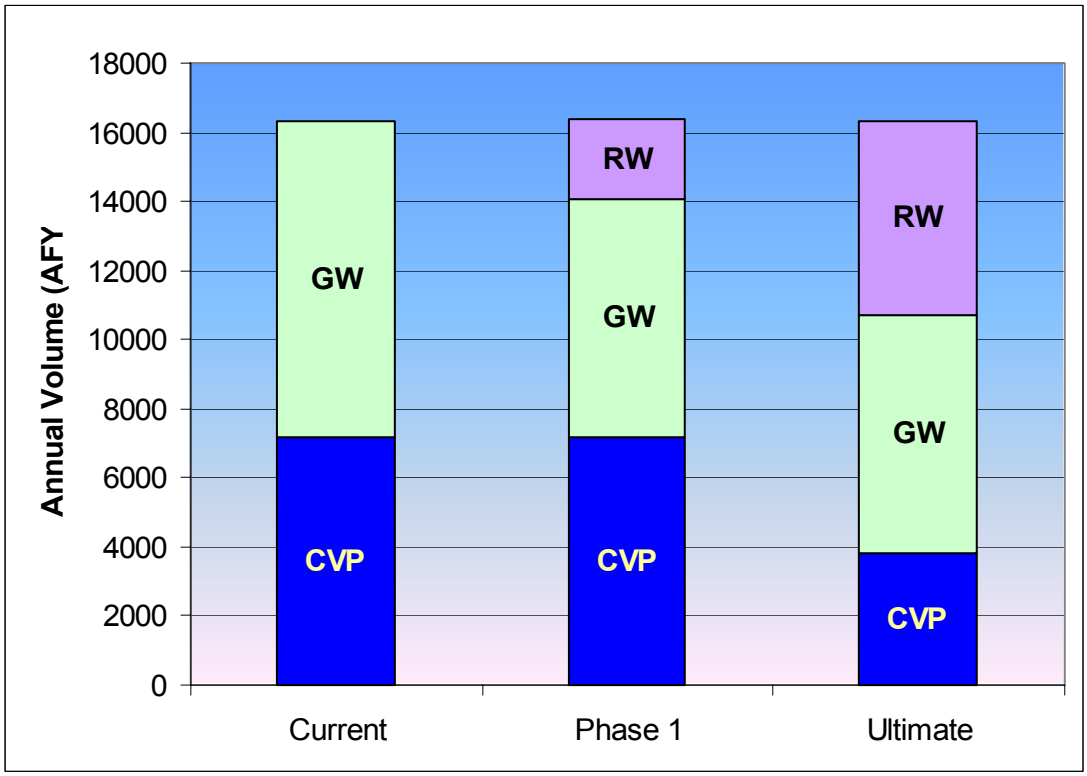
Water Recycling provides a pathway to increased water supply reliability.

The San Benito County Water District (SBCWD) has responsibility for overall management of water resources in San Benito County. A key water resource for Northern San Benito County is imported water from the Central Valley Project (CVP), which augments local groundwater and surface supplies. Unfortunately, CVP supply reliability has been adversely impacted by activities and decisions outside of the SBCWD's control.

Future urban growth and development of irrigated agriculture further exacerbate water supply issues. SBCWD is currently working to manage the groundwater and imported water supplies for maximum benefit of all interests in the County. Of particular interest to SBCWD is the equitable provision of CVP supply and associated benefits to both agriculture and urban interests.

Searching for an alternative supply that supplements CVP and enhances supply reliability, the SBCWD is interested in regional opportunities associated with water recycling. The figure below illustrates how the regional development of recycled water would reduce the dependency on CVP supply and enable SBCWD to more reliably provide adequate irrigation water to growers.

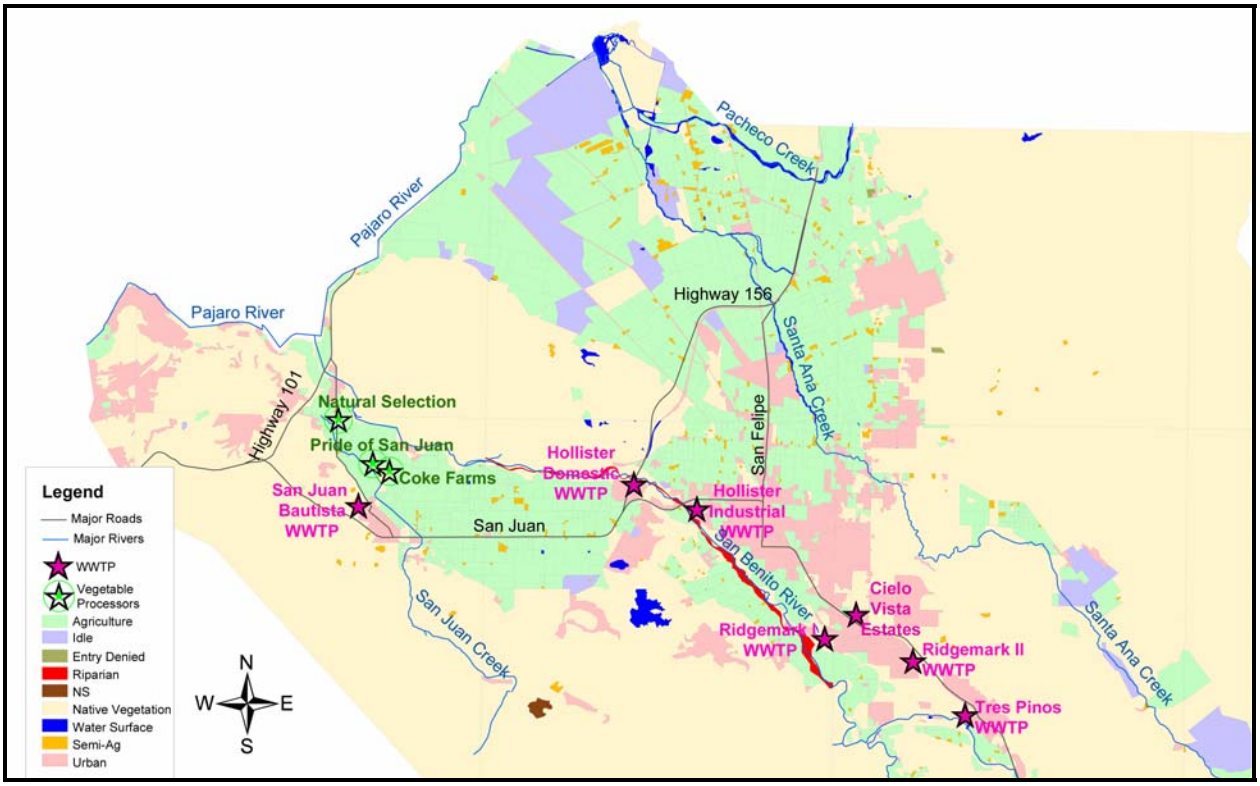
Potential Transition of San Juan Valley Supply



Regional water recycling provides a wastewater management benefit to Northern San Benito County.

The major wastewater treatment and disposal facilities in northern San Benito County, operated by Hollister, SSCWD, and San Juan Bautista, face significant challenges due to existing disposal capacity limitations and emerging regulatory challenges. Water recycling provides these entities with an alternative wastewater management strategy that is an institutionally acceptable means of wastewater disposal.

Potential Recycled Water Sources - Wastewater Treatment Plants and Vegetable Processors



Expansive and proximate agriculture provides the basis for regional water recycling, with urban reuse implemented to the extent institutionally and economically viable.

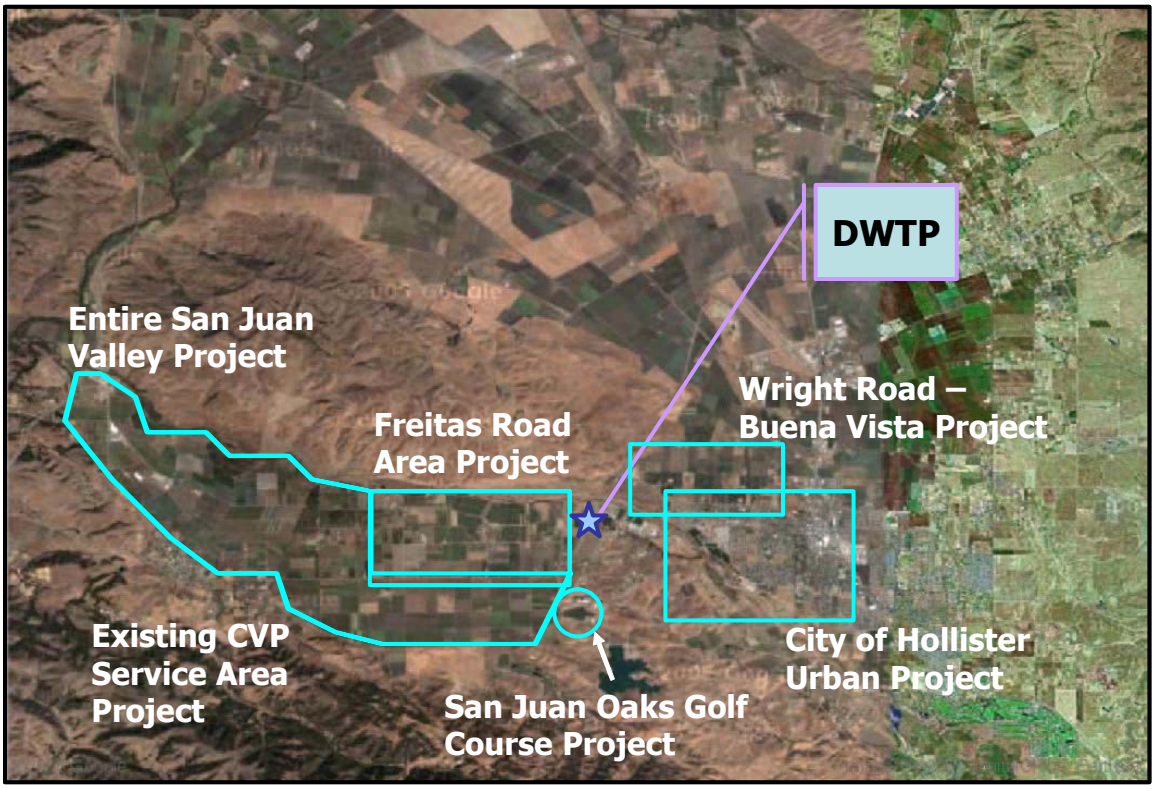
Urban and agricultural water markets, as well as groundwater recharge and environmental enhancement, were reviewed for recycling opportunities. Landscape irrigation is the primary use of recycled water in the urban setting, with potential customers including parks, golf courses (San Juan Oaks and Ridgemark), school yards, and several industries. Although certain urban customers located near the recycled water supply can be cost-effectively served, widespread urban water recycling appears impractical in the Hollister and San Juan Bautista settings due to the extent of dual distribution plumbing and retrofit work required. However, the agricultural market is extensive and proximate. Groundwater recharge projects (indirect potable reuse) require Reverse Osmosis treatment and brine disposal, making them less cost-effective, and heavily scrutinized by regulators. Environmental projects, such as restoration of habitat in the San Benito River corridor, could be feasible in the future. To date, no specific plans have been identified to provide environmental enhancement to that corridor.

Using the criteria shown in the table on the next page, seven potential urban and agricultural service areas (shown in the figure on the next page) were evaluated to determine a recommended ultimate service area for recycled water distribution. Based on this evaluation, the Entire San Juan Valley was recommended as the ultimate service area for this project.

Service Area Evaluation Criteria

Criteria:
1) No negative groundwater impact
2) Maximize recycled water use (recycled water demand greater than 3,000 AF)
3) Be cost effective ($/AF is less than $500)
4) Meet salinity (TDS) goals established in Memorandum of Understanding
5) Provides equity/fairness for involved parties

Potential Agricultural Markets



Transition of urban supply to CVP and demineralized groundwater decreases wastewater salinity and supports additional water recycling.

In the long term, it is anticipated that the urban water supply quality will be improved through conversion to a CVP supply and to demineralized groundwater. These salinity control measures enable more recycled water to be blended into the CVP system (since the recycled water's lower salinity will have less impact on the CVP system), which further increases supply and service reliability in the CVP system serving agriculture.

Recycled water salinity is a major issue for both agricultural and urban use. California Code of Regulations stipulates disinfected tertiary recycled water for the unrestricted urban and agricultural uses to address health and safety issues, but does not address unique customer water quality requirements such as salinity, and specifically sodium and chloride concentrations.

Currently, the salinity of the effluent at the WWTP's varies from about 950 mg/L TDS to 1,400 mg/L TDS. These high salinities result from a relatively high salinity municipal groundwater supply and the prevalence of water softeners in municipal water service areas. Based on agronomic studies and interviews with local growers, this feasibility assessment of recycled water assumes that irrigation supplies to the growers need to be in the 500 to 700 mg/L TDS range. Hence, salinity control measures are a necessary project element.

As urban water quality improves and more recycled water can be introduced into the CVP system, effluent from San Juan Bautista and Sunnyslope County Water District can be incorporated into the regional concept.

As the Hollister urban supply becomes a combination of CVP and possibly demineralized groundwater (low salinity supply), even more (an additional 1,750 AFY) recycled water could be introduced into the distribution system, supporting expansion to serve new areas. The conveyance of Sunnyslope County Water District's effluent flows to a regional water recycling facility and the utilization of San Juan Bautista's effluent flow would support the expansion recycled water treatment and distirbution. Based on Sunnyslope's wastewater management needs, conveyance of raw wastewater to the Hollister WWTP may be the pathway to development of a regional facility.

Another key ingredient in the maximization of a regional water recycling concept is the reduction of water softener use in Northern San Benito County. The improved water quality provided by a CVP/demineralized groundwater supply provides the setting for this, but aggressive public outreach will also be needed.

Phased implementation provides flexibility and improves project funding strategies.

The initial step in the aforementioned regional water recycling implementation strategy would be for Hollister to build the first phase of a regional recycled water treatment facility and distribute its recycled water using a new distribution system serving the Freitas Road Area. Recycled water would be blended with CVP water at the DWTP distribution pump station and distributed to the customers. The CVP water for blending would be provided by connecting the new distribution system with an expanded Northwest Area, whose CVP allocation could be used to manage salinity. This would support Hollister's wastewater management and beneficially use up to 2,340 AFY of recycled water in the San Juan Valley.

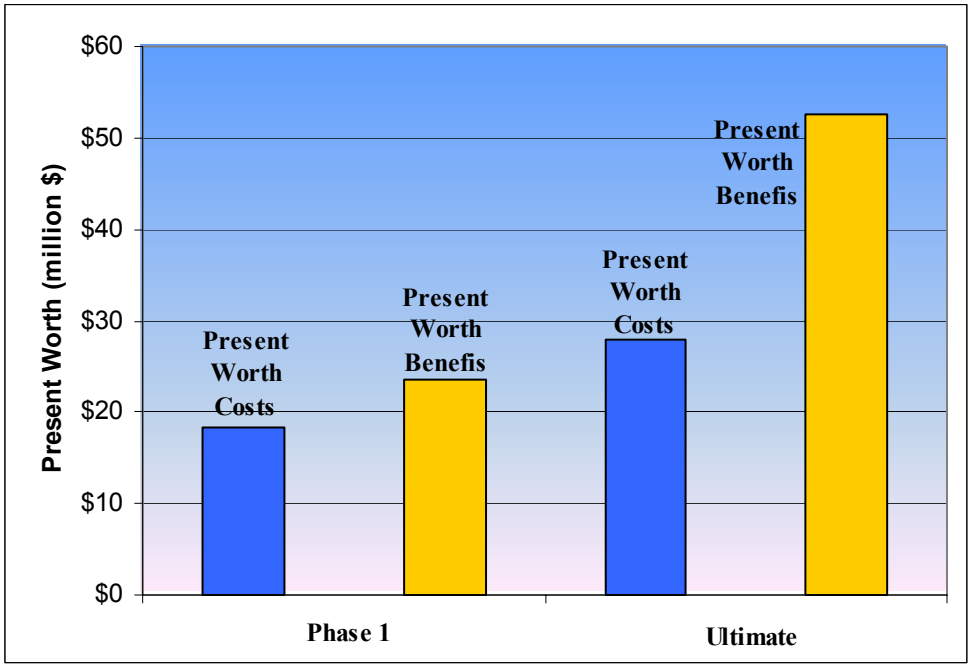
To complete the vision of serving the Entire San Juan Valley with recycled water, the second phase of the project would involve the connection of the remainder of the existing CVP service area to the recycled water distribution system. In addition to this distribution system expansion, provisions to provide CVP water to the proposed City of San Juan Bautista Water Treatment Plant would also be constructed. In addition, backflow protection measures would need to be employed to protect the Hollister Conduit from the backflow of recycled water.

The regional aspect of the water recycling project provides an opportunity for a joint, Phase 1 project between the City of Hollister and SBCWD. Preliminary cost estimates for the first phase (2,340 AFY) of the regional recycled water project totals roughly $21.8 million, with an annual operating cost of roughly $395,000/yr.

A preliminary benefit cost analysis justifies regional water recycling.

The regional water recycling plan includes a wide array of components, providing an array of benefits. Economic justification for a regional water recycling program can be demonstrated by comparing project costs with project benefits. The figure below illustrates a present worth analysis of project costs versus benefits for the Phase 1 and Ultimate Projects as recommended by this Feasibility Study.

Cost vs. Benefit Analysis



In addition to local funding, Federal and State funding is available for recycled water projects.

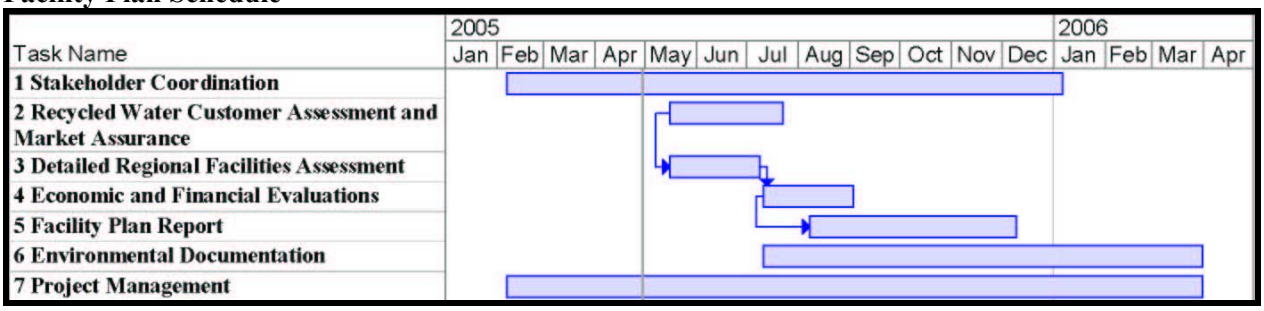
Outside funding assistance for Phase 1 project may be available from Federal and/or State agencies. State and Federal grants and loans from the State Water Resources Control Board (SWRCB), California Department of Water Resources (DWR), and the U.S. Bureau of Reclamation (USBR) may apply to the Project. Grant funding would reduce the amount of local funding needed for the project, reducing its unit cost, and improving the project's financial feasibility.

The recommended implementation approach is to complete a facilities planning phase followed by design and construction, as feasibility dictates.

Additional planning-level work is needed to further refine the recommended alternative as part of the phased approach. The next steps should include stakeholder coordination, funding strategy development, detailed market analysis, public outreach planning, additional engineering evaluation, and environmental compliance. Detailed market assurance assessments are needed to define water customer quality and quantity objectives. Distribution system options, operational requirements, details on pressure, connection location will be the subject of additional technical review. In addition public outreach will be needed to garner public support for a recycled water project.

The schedule below shows the implementation timeframe for the next phase of planning work.

Facility Plan Schedule



Feasibility Study Conclusion: Regional Water Recycling can provide the keystone to the development of a sustainable water supply strategy for Northern San Benito County.

Section 1

Introduction

1 Introduction

Recycled water projects continue to be implemented throughout California to augment water supply as the cost of additional freshwater supplies increase. High quality water is a valuable resource that continues to be in short supply throughout California. A number of regions throughout the state are in short supply and are evaluating alternatives to meet future demand.

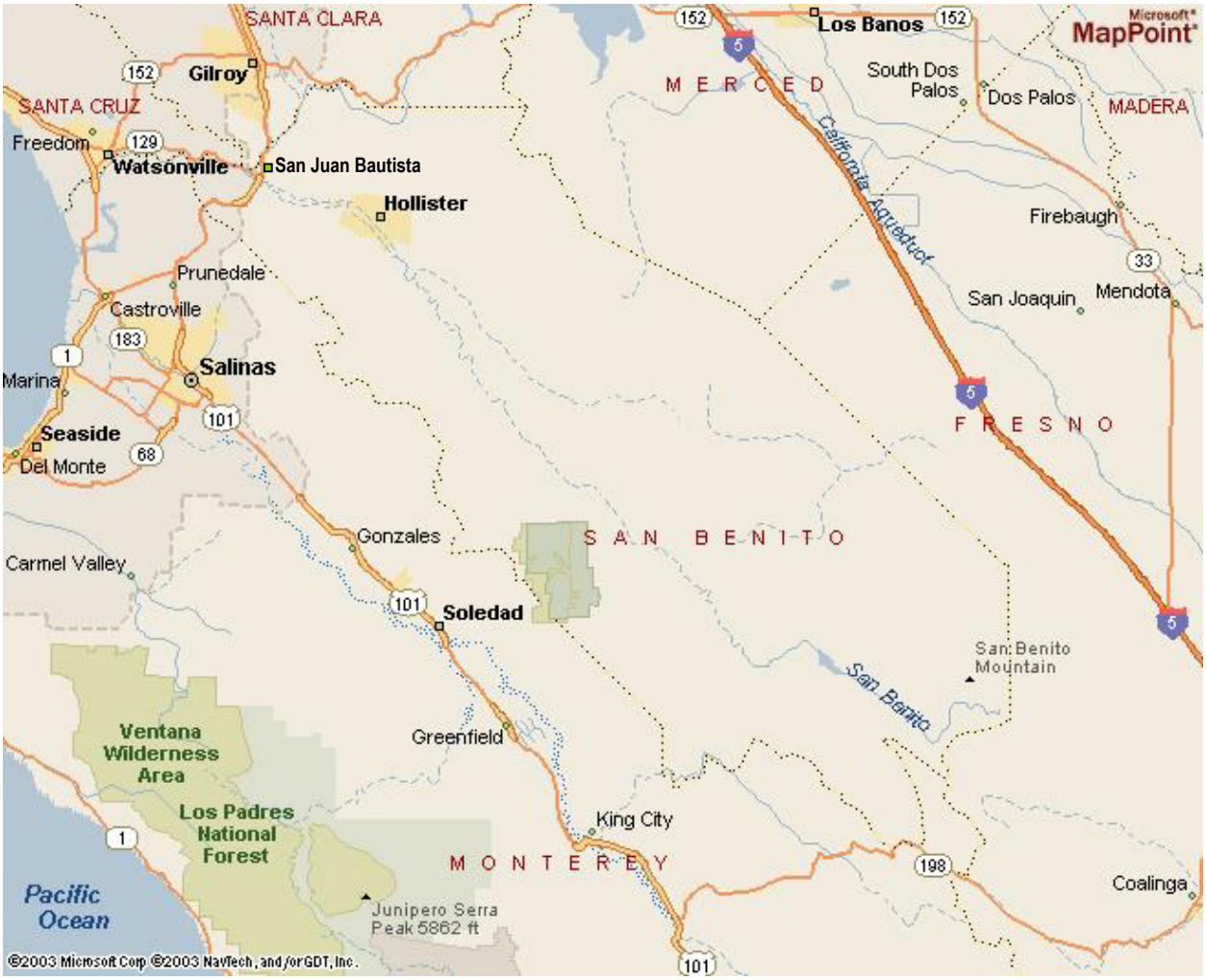
The current and continued increase in the regulatory requirements associated with wastewater treatment and disposal has resulted in local (San Benito County) cities and agencies reevaluating their wastewater treatment and disposal options. The regionalization of effluent management and disposal may produce cost-effective strategies for meeting future regulatory requirements.

The San Benito County Water District (SBCWD) on behalf of the Water Resources Association (WRA) retained Raines, Melton, & Carella, Inc. (RMC) to evaluate the feasibility of the San Benito County Regional Recycled Water Project (Project). The purpose of the feasibility study was to identify a cost effective water recycling project that would meet the needs of the region.

The SBCWD on behalf of the WRA applied for and secured grant funding for the Project from the State Water Resources Control Board (SWRCB) through the Water Recycling Facilities Planning Grant Program. The grant provides a 50% cost share with the SBCWD up to $350,000 to develop a Facility Plan for a regional recycled water project. The Facility Plan evaluation is to be completed in two phases including Phase I Feasibility Study and Phase 2 Facility Plan. This Phase I Feasibility Study included assessment of the recycled water market, review of regulatory requirements, development and evaluation of alternatives for water recycling and regionalization of wastewater treatment, selection of a recommended alternative(s), and an assessment of the feasibility of implementation of a regionalized recycled water project.

San Benito County (SBC) encompasses an area of nearly 1,400 square miles and is located in California's Central Coast region approximately 45 miles northeast of Monterey and 40 miles south of San Jose. The County is generally bordered by Santa Clara County to the north, Santa Cruz County to the northwest, Monterey County to the south and west, Merced County to the east, and Fresno County to the south and east (see Figure 1-1).

Figure 1-1: San Benito County



Municipal services in the County are provided by the cities, water districts, and County government. These cities, water districts, and other agencies such as San Benito County government were identified as potential stakeholders for the project. Table 1-1 lists the potential stakeholders for the project, specifically cities and water districts, and highlights responsibilities related to water and wastewater management.

Table 1-1: Major Stakeholders (Cities, Water Districts, and Other Agencies)

Stakeholders	Responsibilities (related to Water and Wastewater Management)
San Benito County Water District	Water Resource Management, Water Wholesaler/Retailer
City of Hollister	Water Retailer and Wastewater Treatment and Disposal
Sunnyslope County Water District	Water Retailer and Wastewater Treatment and Disposal
City of San Juan Bautista	Water Retailer and Wastewater Treatment and Disposal
Water Resources Association[a]	Water Resource Planning Group with member representatives from Hollister, San Juan Bautista, SSCWD, and SBCWD.
San Benito County	Water and Wastewater Management in County Service Areas

Footnotes:

a. Associate members include San Benito County Farm Bureau, San Benito County Business Council, Loma Prieta Chapter of the Sierra Club, Tres Pinos County Water District, and Aromas Water District.

The Phase I Feasibility Study effort included meetings with stakeholders to collect information, provide project progress updates, and obtain feedback on market opportunities, conceptual alternatives, and other aspects of the project.

1.1 Project Goals and Objectives

Drivers for recycled water projects can be linked to benefits related to wastewater treatment and disposal, water supply and quality, and environmental protection and benefit. These key drivers were used to develop goals and objectives for the Project. The goals and objectives identified are:

- Meet the Northern San Benito County regions wastewater treatment and disposal needs as related to the publicly owned treatment works (POTW). (Water Quality)
- Manage the impact of wastewater discharge to the groundwater basin.
- Help meet water supply and reliability needs.
- Identify, and rank projects based on criteria, including technical feasibility, institutional feasibility, environmental feasibility, and cost effectiveness.
- Identify a recommended alternative or alternatives for further evaluation.

1.2 Feasibility Study Organization

This draft Feasibility Study Report consists of six sections and is organized as follows. A list of references used for the compilation of this Feasibility Study is provided at the end of Section 6.

- **Section 1 – Introduction** (this section)
- **Section 2 – Project Setting.** This section identifies the current conditions in the Northern San Benito County region including hydrologic features, water usage, water quality, land use, future population projections and the water supply setting. Section 2 also reviews the existing wastewater treatment facilities (WWTF's) in the region, including effluent flows, water quality, seasonal issues and discharge requirements.
- **Section 3 – Market Assessment.** This section identifies potential users of recycled water, including urban, agricultural, environmental, and groundwater recharge uses. Water quantity and quality requirements, design requirements, unique issues, and implementation hurdles are identified for each type of use.
- **Section 4 – Alternative Building Blocks.** This section identifies project elements that are use in Section 5 to develop conceptual alternatives. Elements include wastewater conveyance, Title 22 treatment, salinity control, delivery area, and recycled water storage options.
- **Section 5 – Conceptual Alternative.** This section identifies the conceptual alternatives that were developed and describes the assessment of the feasibility of each alternative. Conceptual level cost estimates were developed and benefits were identified for each alternative.
- **Section 6 – Recommended Alternative.** This section identifies a recommended two phase strategy for near-term and long-term recycled water use in the region. This recommended alternative will continue to be evaluated in the next phase. Costs for the overall project are identified, as well as the impacts and legal and/or institutional issues associated with the proposed project. This section also includes a proposed implementation strategy including public outreach, additional planning steps, environmental compliance, and funding pursuit.

Section 2

Project Setting

2 Project Setting

This section describes the project setting for the San Benito County (SBC) Regional Recycled Water Project. The purpose of this section is to identify attributes and other characteristic that are important factors in consideration of a regional recycled water program. This section includes data on land use, hydrologic setting, population, water use and supply, wastewater management, and other study area characteristics.

2.1 Overview

SBC faces a wide array of water supply and environmental challenges. Following is a brief statement of these challenges. This section will describe these challenges in more detail.

Water Supply Quantity

- **Maintain Basin Balance**. During dry periods (a series of dry years), the groundwater basin is at risk of imbalance due to a reduction of local runoff. CVP import supply was originally earmarked to address this imbalance, but CVP supply cutbacks have reduced that imported supply's ability to maintain the basin in hydrologic balance during dry periods.
- **Supply Reliability**. Due to CVPIA and other state and federal policies and decisions, the reliability of CVP supply to SBC has been reduced. This reduction in reliability affects the utilization (on-line) factors of surface water treatment plants, and prevents local municipal and industrial (M&I) systems from gaining the full benefits of the CVP supply.
- **High Groundwater Levels**. Notwithstanding the potential basin imbalance that can occur during dry periods, localized high groundwater levels have been identified in portions of the groundwater basin. High groundwater can provide construction challenges and public safety risks (liquefaction) in urban areas, and impede crop growth and production in agricultural areas.

Water Supply Quality

- **High Groundwater Salinity**. Local groundwater is generally high in salinity, due to both geology and cultural practices. This high salinity can cause problems for both M&I and agricultural use.
- **High Groundwater Hardness**. Naturally high in hardness, local groundwater poses a problem for M&I use. Reduced useful life of plumbing and fixtures prompts homeowners and businesses to soften their supply. Both commercial and residential water softeners are prevalent in the area, and are generally serviced by on-site regeneration systems. These on-site regeneration systems add a significant amount of sodium and chloride to the municipal wastewater flow, which impacts effluent discharge.
- **High Nitrate**. Portions of the groundwater basin experience high nitrate levels.

Wastewater Discharge

- **Disposal Capacity**. Certain wastewater treatment plants (WWTP's) in the County have disposal capacity problems, either to local groundwater or surface water. Expansion of disposal capacity is restricted by environmental factors such as salinity loading or nutrient loading on the receiving water.
- **Salinity**. As noted above, high hardness in local groundwater prompts significant water softener use and an associated high salt loading to the municipal wastewater stream. This salt loading combined with salinity added through typical M&I use often causes effluent discharges to exceed basin plan objectives and associated waste discharge requirement water quality objectives.
- **Nitrate**. Likewise, high nitrate levels in local municipal discharges contribute to the high nitrate problems experienced in some portions of the basin.

Environmental

- **Nitrate**. High nitrate levels in portions of the SBC groundwater basin eventually drain into the Pajaro River, a tributary to the Monterey Bay National Marine Sanctuary. The Pajaro River has a nutrient TMDL, and nitrate levels in the sources to the river, including tributaries within SBC, that are being examined by the RWQCB.

2.2 Groundwater Management Plan

Recognizing the challenges such as those noted above, the San Benito County Water District (SBCWD) developed a Groundwater Management Plan (GMP) in the early 1990's to document strategies and tools to address these issues. Recently, the GMP has been updated through a partnership between the SBCWD and the Water Resources Association of SBC (WRA). Based upon this GMP Update, a *Final Program Environmental Impact Report* (FPEIR) has been prepared. These documents are summarized below.

2.2.1 Groundwater Management Plan Update (April 2004)

The GMP Update was an update of the 1998 GMP that was developed by the SBCWD, City of Hollister, Sunnyslope County Water District (SSCWD), City of San Juan Bautista (San Juan Bautista), Tres Pinos County Water District (TPCWD), and Aromas Water District (AWD).

The purpose of the GMP Update was to address water quality and quantity issues in the region. Problems and issues of concern include increasing salt accumulation, localized high and low water levels, wastewater disposal, reliability of import water supplies, nitrates in groundwater subbasins, and other issues. Objectives and criteria for the project included 1) management of water supplies, salt accumulation, and water supply reliability, 2) minimize environmental impacts, 3) meet regional water supply needs, and 4) identify cost effective and feasible programs and projects from an implementation and permitting perspective. Another goal of the GMP Update was to provide project information and details for the GMP Update PEIR. Preliminary environmental impacts were identified in the GMP Update.

The GMP Update process included development and evaluation of program and project alternatives that were screened in an initial phase. The most practical and feasible alternatives identified in the initial screening process are included in the GMP Update. Each of the programs and projects were prioritized according to associated benefits and conformance with project objectives and criteria. Three levels of priority were identified, including high (3-5 year implementation), medium (6-10 year implementation), and low (11-20 year implementation) priority.

The GMP Update includes institutional programs and capital improvement projects conceived to meet the goals and objectives of the region. A number of the programs and projects such as conservation efforts, salinity education, surface water importation, percolation on wastewater, and groundwater pumping are on-going or have been implemented. These efforts are expected to continue in the future. Existing and new programs and projects that were identified in the GMP Update are summarized in Table 2-1. The programs and projects identified in Table 2-1 represent a toolbox of options that are considered feasible and could be implemented. The programs and projects identified will continue to be evaluated and several projects are expected to be implemented. Some of the projects identified are expected to be unfeasible due to environmental impacts, regulatory constraints, and other issues.

Table 2-1: Programs and Projects in the GMP Update

Priority	Program Type	Project Toolbox Element
Institutional Programs		
On-going	Institutional	M&I Water Conservation
On-going	Institutional	Agricultural Water Conservation
On-going	Institutional	Salinity Education Program
On-going	Institutional	Industrial Salt Control in Municipal Wastewater (WW) Program
On-going	Institutional	Nitrate Education Program
On-going	Institutional	Maintain and Enhance Strategic Data Collection and Management Program
On-going	Institutional	Continue and Expand Economic/Regulatory Water Level Management Tools
High	Institutional	Water Softener Ordinance
High	Institutional	Well Construction and Abandonment Ordinance
Continuation of Existing Projects Activities		
On-going	Existing	Existing Groundwater (GW) Extraction Facilities
On-going	Existing	Surface Water Importation
On-going	Existing	Surface Water Treatment Site A–Lessalt-3 MGD
On-going	Existing	M&I WW Effluent Percolation
On-going	Existing	Water Transfers
On-going	Existing	In-Basin Water Banking-Natural Direct Percolation
On-going	Existing	In-Basin Water Banking-Artificial Percolation of Imported and/or Local Surface Water-San Benito River Well field
On-going	Existing	In-Basin Water Banking-In-lieu banking of imported and/or local surface water
High	Existing	Surface Water Treatment Site B-San Juan Bautista-1 MGD
Medium	Existing	Surface Water Treatment Site C-Location to be determined (TBD)-Est. Capacity 2 MGD
Medium	Existing	Surface Water Treatment Site D-Location TBD-Estimated Capacity 1.3 MGD
Low	Existing	Surface Water Treatment Site E-Location TBD-Estimated Capacity 1.2 MGD
New Projects/Activities		
High	New	Development/Improvement of High Quality Local GW and Surface Water Supplies-Cienega
High	New	Development/Improvement of High Quality Local GW and Surface Water Supplies-Pacheco/Northern Hollister East Sub-basins GW Pumping
High	New	Development/Improvement of High Quality Local GW and Surface Water Supplies-Arroyo Dos Picachos
High	New	Regional and Local Conveyance Facilities for Multiple Water Supply Distribution – Pipeline Segment A
High	New	Regional and Local Conveyance Facilities for Multiple Water Supply Distribution – Pipeline Segment B
High	New	Out-of-Basin Water Banking
High	New	GW Treatment and Concentrate Disposal Site A – Hollister/Sunnyslope Area
High	New	GW Treatment and Concentrate Disposal Site B – Hollister/Sunnyslope Area
High	New	GW/Surface Water Blending with Pipeline A and B
High	New	Recycled M&I WW Effluent for direct Reuse-SJB Recycled M&I WW Effluent Project
High	New	Tile Drains for Localized Groundwater Level Management
High	New	Tree Belt Evapotranspiration for Localized GW Level Management/WW Disposal
High	New	GW Pumping for Water Level/Water Quality Management
High	New	Out-of-Basin Export-River Discharge of wastewater effluent, concentrate, pumped GW, and/or agricultural drainage
High	New	Out-of-Basin Export-Evaporation and trucking of concentrate
High	New	Out-of-Basin Export-Export pipelines for WW effluent, concentrate, pumped GW, and/or agricultural drainage
High	New	Constructed Wetlands for Treatment/Polishing of Wastewater effluent/Storm water/Agricultural Runoff

Priority	Program Type	Project Toolbox Element
Medium	New	Regional and Local Conveyance Facilities for Multiple Water Supply Distribution – Pipeline Segment C
Medium	New	Regional and Local Conveyance Facilities for Multiple Water Supply Distribution – Pipeline Segment D
Medium	New	In-Basin Water Banking-Aquifer Storage and Recovery of imported and/or local surface water
Medium	New	Recycled M&I WW Effluent for direct Reuse-Sunnyslope Ridgemark
Medium	New	Recycled M&I WW Effluent for direct Reuse-Hollister Domestic
Medium	New	Recycled M&I WW Effluent for direct Reuse- Hollister Industrial
Low	New	Development/Improvement of High Quality Local GW and Surface Water Supplies-Pacheco Creek
Low	New	Development/Improvement of High Quality Local GW and Surface Water Supplies-Arroyo Las Viboras
Low	New	Regional and Local Conveyance Facilities for Multiple Water Supply Distribution – Pipeline Segment E
Low	New	GW Treatment and Concentrate Disposal Site C – Location TBD
Low	New	GW Treatment and Concentrate Disposal Site D – Location TBD
Low	New	GW Treatment and Concentrate Disposal Site E – Location TBD

The GMP Update identified wastewater recycling as a priority "tool" to aid in addressing local water supply issues. Benefits associated with water recycling projects included beneficial use of a valuable resource (agricultural water supply or non-potable urban supply), groundwater level management, and assistance in meeting wastewater disposal requirements. For additional details on each of the projects the reader is referred to the GMP Update.

2.2.2 Final Program Environmental Impact Report (May 2004)

The final *PEIR (SCH# 2002121003) for Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin* is comprised of a final report and the Draft PEIR dated August 2003.

The purpose of the Draft *PEIR (SCH# 2002121003) for Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin* is to inform public agency decision makers and the general public of the significant environmental consequences of the GMP Update projects, and to identify possible ways to minimize the significant impacts and describe reasonable alternatives for the projects.

The final PEIR highlights the review process and addresses comments received from agencies and individuals on the draft document. The report also documents decisions and revisions to the draft report.

The proposed projects are intended to provide reliable, sustainable and good quality water for existing and future agricultural, M&I uses in northern SBC in accordance with the goals and objectives of the GMP Update.

The Final PEIR identified significant impacts associated with the proposed plan, including flooding and water quality, impacts to wetlands and aquatic habitats, impacts to special-status species, potential impacts to cultural resources, and growth inducement. Consequently, that final PEIR identified and evaluated alternatives (including modifications to particular components of the proposed project) to avoid or to reduce some or all of the significant impacts. Alternatives associated with the plan are as follows:

- No Project Alternative

- Modified Export Pipeline/No River Discharge Alternative
- Modified River Discharge Alternative
- Pumped Groundwater Only River Discharge Alternative
- Limited or No Groundwater Pumping for Water Level Management Alternative

Of the alternatives listed above, a combination of the Modified Export Pipeline/No River Discharge Alternative and the Limited or No Groundwater Pumping for Water Level Management Alternative are considered as the environmentally superior alternative to the proposed GMP Update projects. This combination would avoid or substantially reduce the environmental impacts of the GMP Update. These two alternatives are discussed below.

The **Modified Export Pipeline/No River Discharge Alternative** is a modification of the Out-of-Basin Export Project element of GMP Update to reduce impact to steelhead and sensitive habitat. The Out-of-Basin Export Project proposes the export of concentrate from groundwater desalination or softening, pumped groundwater, and agricultural drainage. Export would be achieved through the evaporation and trucking of salts. It was originally proposed in the Draft PEIR and the GMP Update that wastewater effluent be exported through an export pipeline to the City of Watsonville WWTP. This option has been identified as needing further study to fully determine the impact of the effluent on the Watsonville ocean outfall. Also, several stream and earthquake fault crossings would be required, increasing the complexity of the construction.

As the name suggests, the river discharge option, as an alternative to the export pipeline or trucking of salts, would not be employed due to the environmental impacts associated with use of the Pajaro River.

This alternative would avoid flooding, water quality impacts, and steelhead impacts associated with the River Discharge project element. Potential loss of wetlands and habitat for special status species associated with lowering groundwater levels by groundwater pumping would remain the same as the proposed project.

The GMP Update proposes several projects to facilitate management of groundwater levels. Proposed projects include groundwater pumping, tile drains, and tree belt evapotranspiration. High groundwater levels are problematic in the San Juan, Pacheco, and Hollister East subbasins. Although high groundwater levels impact agricultural activities, they also support riparian and wetland habitats. The **Limited or No Groundwater Pumping for Water Level Management Alternative** would avoid groundwater pumping for water level management in areas of SBC where groundwater comes to the surface and supports wetlands or flows into riparian and aquatic habitats. Alternatively, habitat mitigation could be implemented to allow groundwater pumping to occur.

This alternative consists of a modification and refinement of the groundwater pumping project in the GMP Update. The alternative would avoid substantial impacts to wetlands, aquatic and riparian habitats, including areas used by special status species. Limited groundwater pumping could be implemented if affected habitat is less than one acre or if impacts are only associated with developed habitats.

This alternative will not meet the groundwater management objective identified in the GMP Update. Therefore, high water levels would continue to be problematic in specific areas of SBC.

In summary, the combination of Modified Export Pipeline/No River Discharge Alternative and Limited or No Groundwater Pumping for Water Level Management Alternative would avoid or substantially reduce almost all of the significant impacts of the proposed project. A regional water recycling strategy would coincide with the recommended project that emerges from this GMP Update and Program EIR process.

2.3 Study Area Characteristics

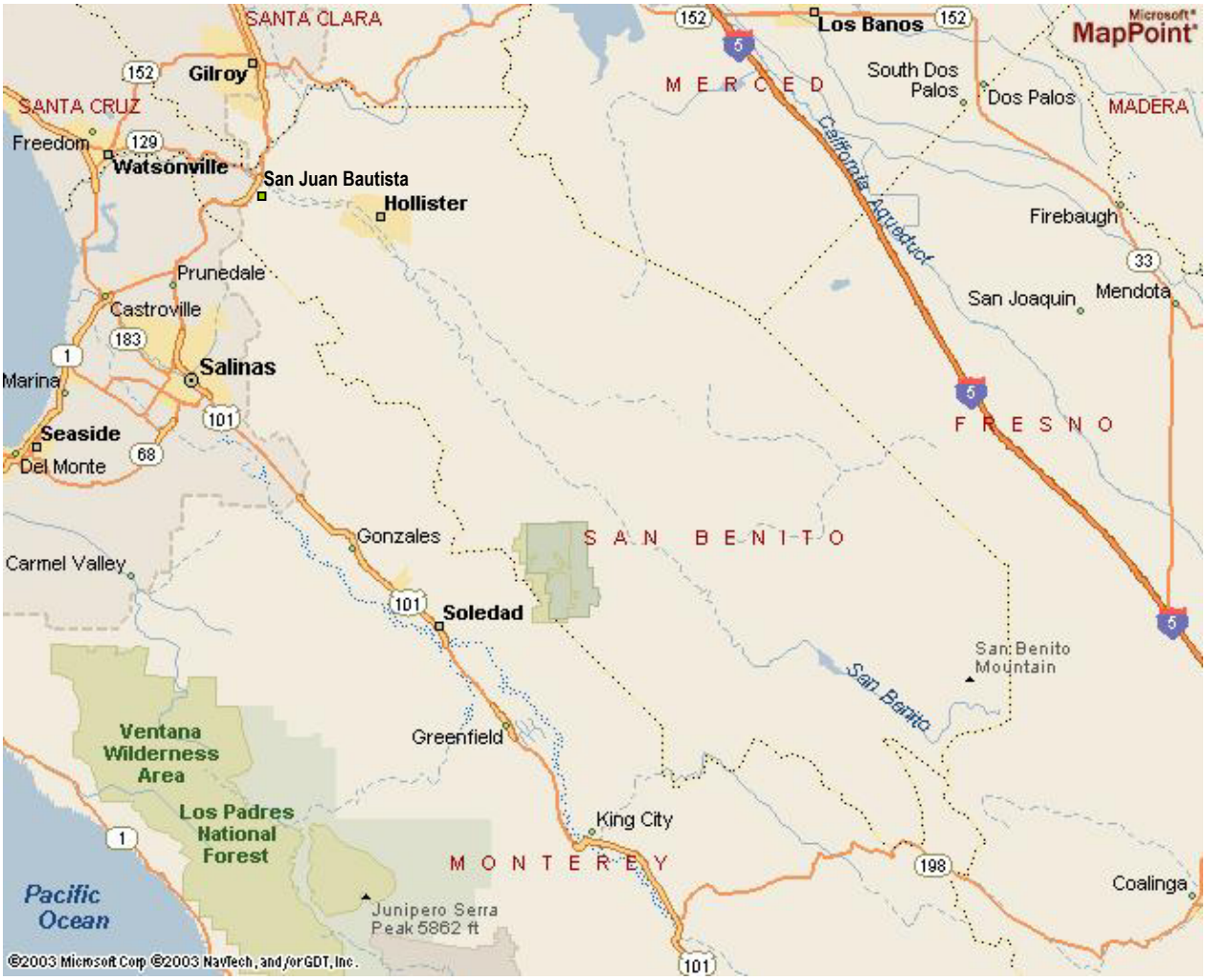
The *Annual Groundwater Report for Water Year 2004* by Gus Yates provides a background of the SBC setting. This section summarizes and directly quotes information and data from that Report. This section focuses on the basin setting and characteristics that are of importance for development of a recycled water project.

2.3.1 Basin Setting

SBC encompasses an area of nearly 1,400 square miles and is located in California's Central Coast region approximately 45 miles northeast of Monterey and 40 miles south of San Jose. The County is generally bordered by Santa Clara County to the north, Monterey County to the south and west, Merced County to the east, and Fresno County to the south and east (see Figure 2-1).

This feasibility study focuses on the northern portion of SBC, which includes the major urban areas and irrigated agricultural acreage. Most of the 56,000 people in the County reside in Hollister and San Juan Bautista. Wastewater treatment facilities and major market opportunities for recycled water uses are in the northern region of the County.

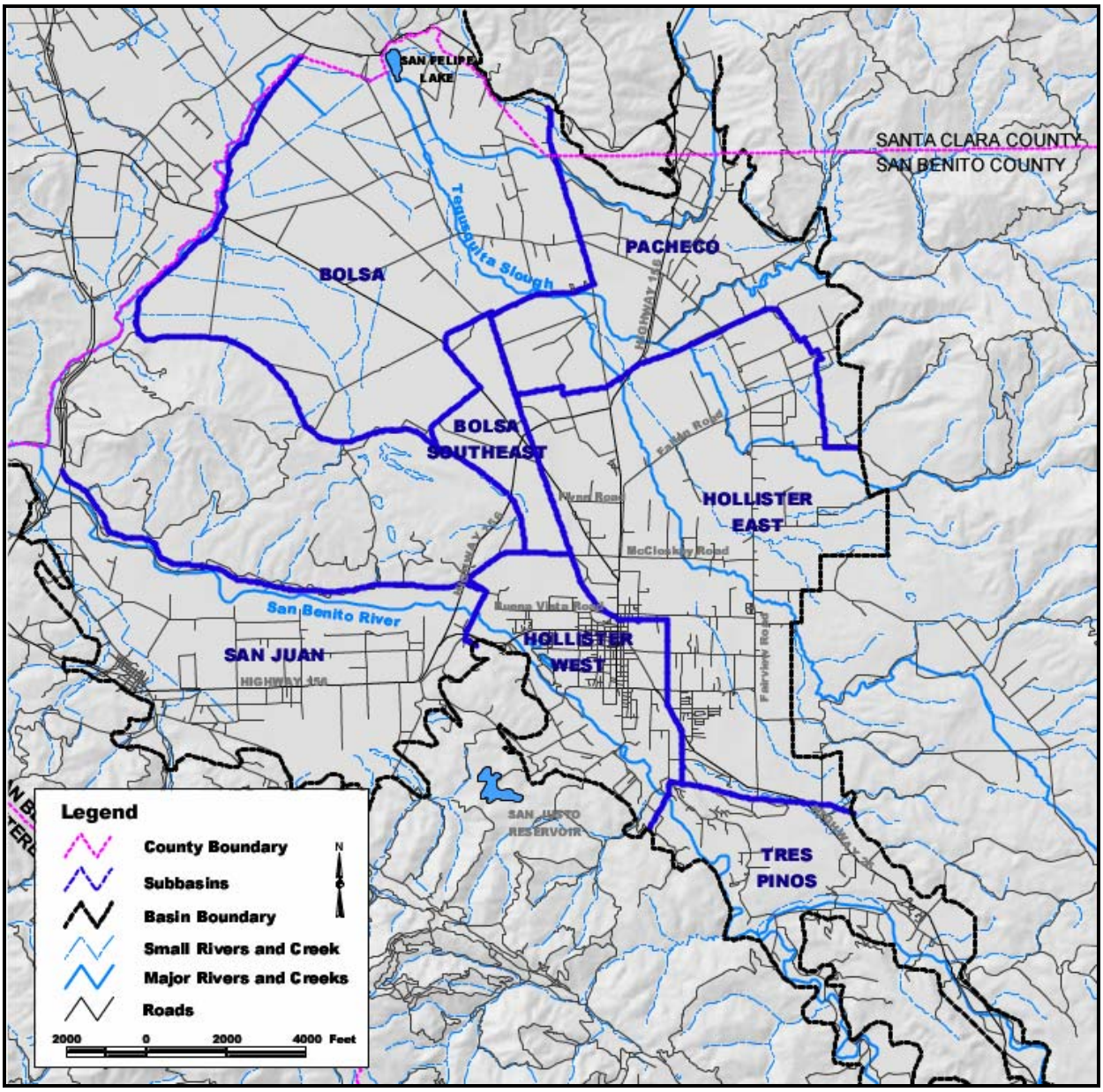
Figure 2-1: Location Map



2.3.2 Groundwater Basins

The primary groundwater basin in SBC is the southern section of the Gilroy-Hollister groundwater basin, which lies under the Hollister, San Juan, and Santa Clara Valleys, generally between Tres Pinos to the south and Morgan Hill to the north. The northern SBC region is comprised of seven subbasins including the Bolsa, Bolsa Southeast, Pacheco, Hollister East, Hollister West, Tres Pinos, and San Juan subbasins. Figure 2-2 shows the location of the SBC groundwater basin and the subbasins. Groundwater levels and water quality, discussed in detail in Section 2.5, are primary issues in the basin. The northern San Benito County region is also defined as basin 3-3 in the Department of Water Resources Bulletin 118 (Subbasin include 3-3.02 Bolas Area, 3-3.03 Hollister Area, and 3-3.04 San Juan Bautista Area).

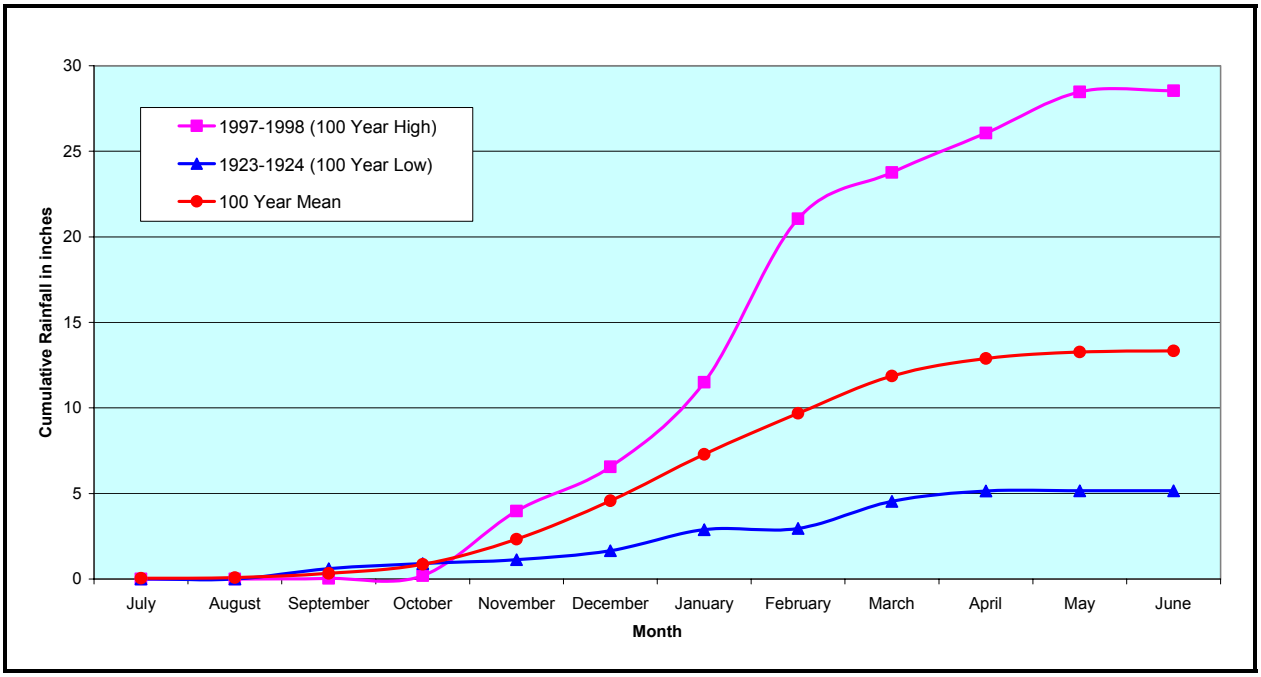
Figure 2-2: San Benito County Basin Location Map



2.3.3 Climate

The SBC's climate is classified as a temperate, Mediterranean type climate with cool, wet winters, and dry, hot summers. The majority of rainfall precipitates between November and April. Annual rainfall during the 2004 water year was close to average for the sixth year in a row and there was a small decrease in groundwater storage. Annual average precipitation for Hollister is about 13.3 inches. During the past century, annual rainfall in SBC has ranged from 5.2 to 28.5 inches as shown in Figure 2-3.

Figure 2-3: San Benito County Cumulative Rainfall



Note:

1. The graph was created from rainfall data recorded by the SBCWD (http://www.sbcwd.com/rainfall.txt)

2.3.4 Population

Population projections can be used to estimate future urban water use and wastewater flows. The majority of the population in SBC is concentrated in Hollister and San Juan Bautista. Development and population in the County have increased at a faster rate compared to surrounding counties and at more than twice the state level growth rate.

San Juan Bautista, Hollister, and the County have passed ordinances to control the rate of future growth. Population estimates for 2002 and 2022 are presented in Table 2-2. By 2022, the SBC population is expected to increase by about 39%. This 2022 population estimate considers the growth and population ordinances that control growth in the cities and in the unincorporated areas in the County.

Table 2-2: Population Estimates for 2002 and 2022

Region	Population 2002[a]	Estimated Population 2022[b]
City of Hollister	36,338	53,600
City of San Juan Bautista	1,597	1,950
Unincorporated County	17,986	21,950
Total Population	**55,921**	**77,500**

Source: Groundwater Management Plan Update for the SBC Part of the Gilroy-Hollister Groundwater Basin (Kennedy/Jenks Consultants, July 2003)

Footnotes:

a. Population data for 2002 was adopted from California Department of Finance City and County Population and Housing Estimates, Official State Estimates as of January 1, 2002.

b. Estimated Populations for 2022 are based on the growth management ordinances described in the Groundwater Management Plan Update.

2.3.5 Land Use

SBC agriculture is a $210 million industry and is the basis for SBC's economy (SBC 2000 Annual Crop Report). The County's farming and grazing lands are extremely productive and support a significant acreage and variety of grain, hay, vegetable, fruit, nut, and other produce. Some of the most common vegetable crops grown in the County include lettuce, bell peppers, onions, celery, and broccoli. Common orchard crops are walnuts, grapes, apricots, and apples.

Livestock production occurs in the valley as well as the foothill areas. Large areas of rangeland and pasture are situated in the Bolsa sub basin at the northwestern edge of the Hollister Valley. The San Juan Valley is primarily irrigated agriculture. Special status species habitat exists within the foothill and valley areas, especially around creeks and river channels.

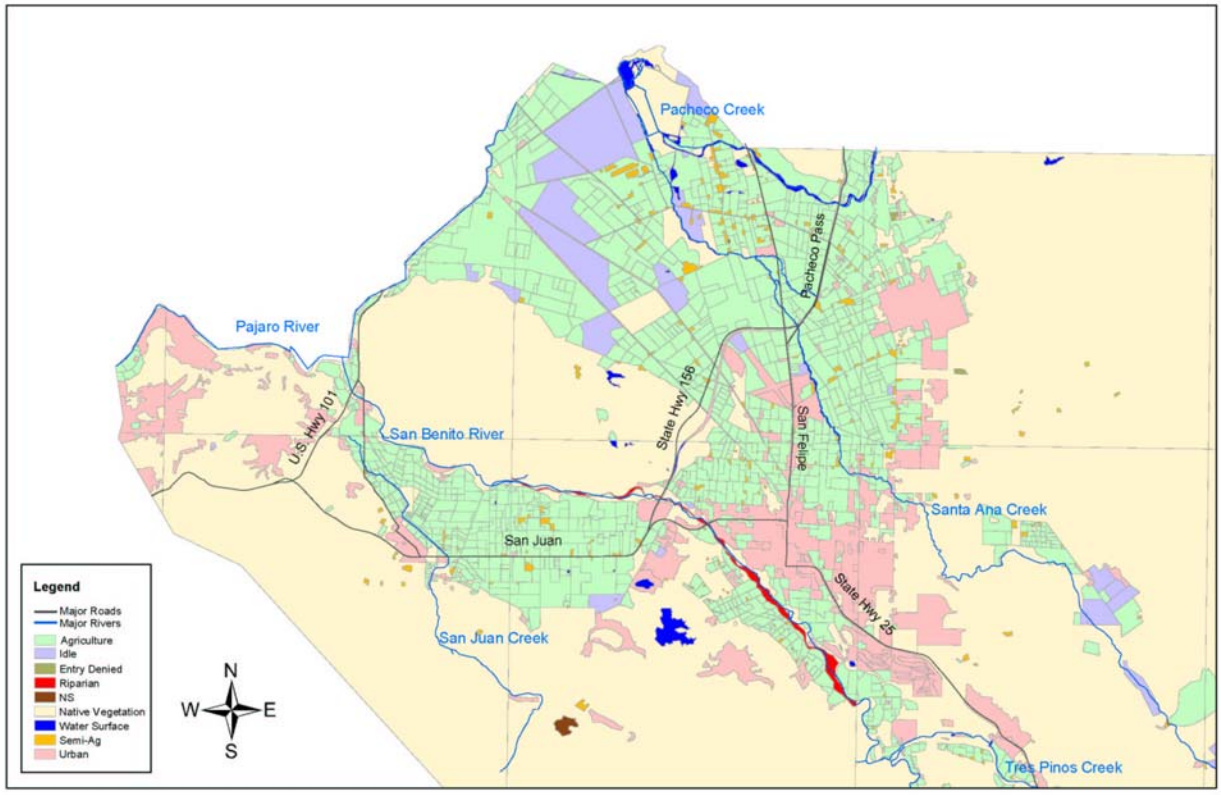
Some of the prime agricultural areas are gradually being converted to urban areas as the population is expanding. Urban land uses are primarily around Hollister and San Juan Bautista in the northern area of the County. Unincorporated residential developments exist primarily around the golf courses and on the edges of alluvial fans and foothills. Industrial areas in the unincorporated portions of SBC include various agricultural uses, sand and gravel mines, and munitions manufacturing facilities.

Hollister is the largest urban area in SBC, representing approximately 65% of the population. Areas within the City range from light to densely populated residential zones. Commercial uses are present along major roadways especially in the downtown area. Light industrial and agricultural land uses exist in the northwestern area of the City.

San Juan Bautista is located in the San Juan Valley, in the northwestern area of SBC. Residential use accounts for approximately 20% of the City's 750 acres. Commercial uses occupy only 4% of the City and light industrial areas are found in 1% of the City. Schools, government buildings, parks, and other city land, makes up 15% of the land use. The remaining 60% of San Juan Bautista encompasses streets, rural residences, agriculture, and vacant land.

Figure 2-4 shows the major land use categories from the Department of Water Resources (DWR) 1997 land use survey. The DWR land use data includes crop type and acreage that can be used in conjunction with other factors to estimate crop water use. Estimates of crop water use are included in Section 3 of this report. Based on the *GMP Update*, irrigated agriculture in SBC encompassed approximately 36,000 acres in 2002. By 2022, irrigated acreage is expected to increase to 53,000 acres.

Figure 2-4: San Benito County Land Use



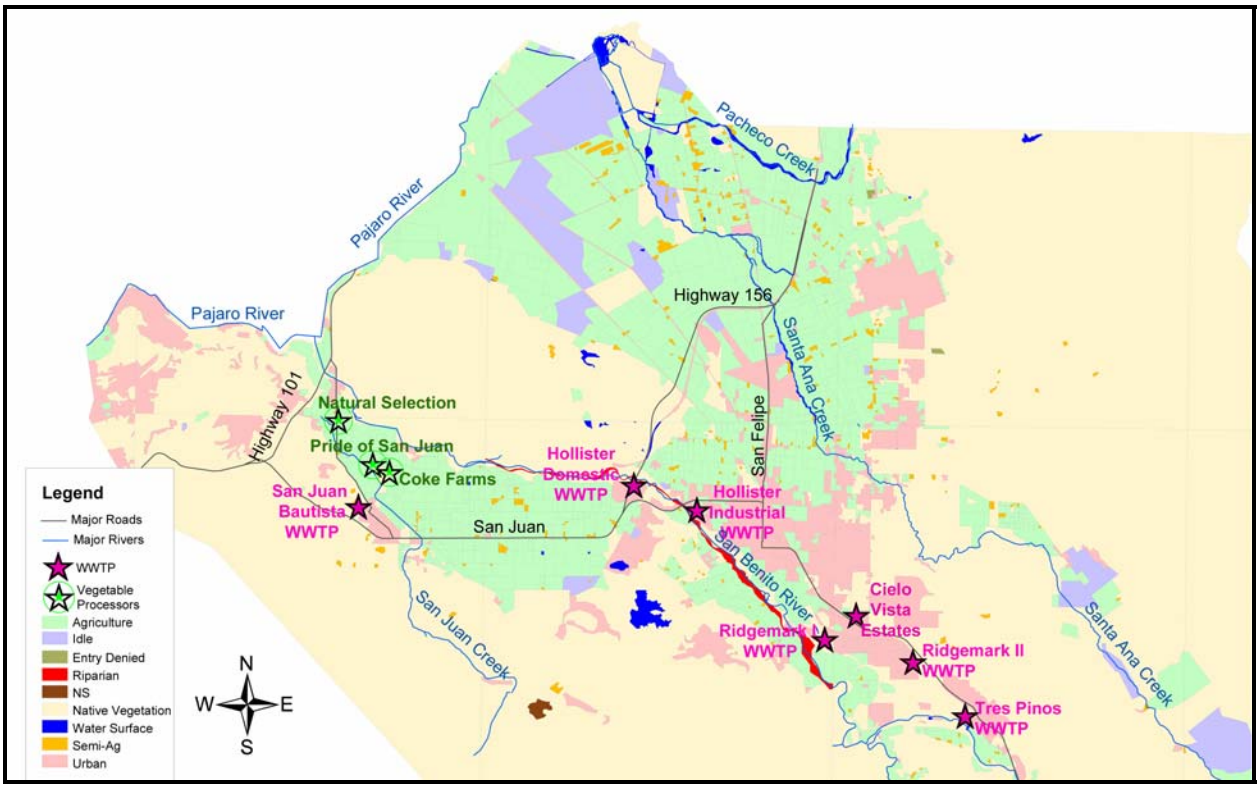
2.4 Wastewater Treatment and Disposal

The five largest WWTP's in northern SBC include the Hollister Industrial, Hollister Domestic, San Juan Bautista, Sunnyslope, and Tres Pinos WWTP's, as shown in Figure 2-5. With the exception of San Juan Bautista, which discharges to a drainage ditch that is tributary to the Pajaro River, all of the WWTP's dispose of their effluent by evaporation and percolation into the groundwater basin. Approximately 4,000 acre-feet of wastewater was percolated into the groundwater basin in 2002 (Yates, 2002). The majority of percolated treated wastewater came from the two Hollister facilities. Table 2-3 summarizes existing and projected wastewater flows.

There are other small WWTP's in the unincorporated portions (rural areas) of the region, like the Cielo Vista WWTP, which processes less than 50 acre-feet per year. These facilities are associated with County Service Areas (CSA's). Other rural areas are typically serviced by individual septic systems, usually consisting of a septic tank and a leach field. These systems are not considered a viable recycled water opportunity due to minimal flows.

The region also includes three vegetable processing facilities near in San Juan Bautista that produce a significant quantity of process wastewater flow. Currently, Pride of San Juan and Natural Selection produce approximately 12,000 and 70,000 gpd, respectively. Coke Farms, a third vegetable processor, is currently idle and does not produce wastewater flow. Process wastewater flows are seasonal from April to December for Pride of San Juan, and April to November for Natural Selection. Natural Selection currently treats its flow and diposes of the water through land application. Pride of San Juan currently discharges to the San Juan Bautista WWTP. Both companies are planning to expand facilities in the future. Wastewater flows from Pride of San Juan and Natural Selection are anticipated to increase to 150,000 gpd and 350,000 gpd, respectively at build out (Personal Communication with Glen Holdren, Bracewell Engineering).

Figure 2-5: Location of Wastewater Treatment Plants and Vegetable Processors



The Central Coast Regional Water Quality Control Board (RWQCB) is the regulatory agency that governs waste discharge in SBC. The RWQCB issues Waste Discharge Requirement (WDR) permits covering wastewater disposal plus National Pollutant Discharge Elimination System (NPDES) permits for surface water discharges. The permits summarize existing treatment processes, water quality requirements, and specific studies that the agencies/districts must complete. Details on the five largest WWTP's and WDR's are summarized in the sections below.

Table 2-3: Existing and Projected Wastewater Flows

Treatment Facility	Existing Average Flow (mgd)	Existing Annual Volume (AF)	2022 Wastewater Flow (mgd)[f]	2022 Annual Volume (AF)[f]
Hollister Domestic	2.5[a]	2,800	3.65[c]	4,090
Hollister Industrial	3.1[b]	1,140	4.52[c]	1,660
Ridgemark I	0.19	210	0.23[d]	260
Ridgemark II	0.095	110	0.11[d]	120
San Juan Bautista	0.208	230	0.24[d]	270
Tres Pinos	0.025	30	0.03[d]	30
Natural Selection[e]	0.070	50	0.35	230
Pride of San Juan[e]	0.012	10	0.15	110
Coke Farms	0	0	Unknown	Unknown

Footnotes:

a. 2000 average flow from the City of Hollister WDR permit.
b. Peak cannery flow in 1997. The canning season is from mid June through mid October. Data from the City of Hollister WDR permit.
c. The flows have been calculated from the population increase (Table 1.1) using a factor of 46 % increase.
d. The flows have been calculated from the population increase (Table 1.1) using a factor of 22 % increase.
e. Flows based on personal communication with Glen Holden of Bracewell Engineering. Natural Selection typically operates from April to November. Pride of San Juan typically operates from April to December.
f. Potential future conservation efforts were not considered in the 2022 projections.

2.4.1 Hollister Domestic

The Hollister Domestic WWTP is located west of downtown Hollister, straddling Highway 156 near the San Benito River, less than a mile west of the Hollister Industrial Plant. The facility consists of a bar screen, two facultative ponds, a high rate recirculation pond, and two algae-settling ponds. The treated effluent is discharged to 27 acres of evaporation/percolation ponds. The percolation ponds have an estimated disposal capacity of 2.5 MGD. The 2000 domestic flow was about 2.5 MGD (RWQCB, September 2000). The plant is permitted to discharge 2.69 MGD based on the WDR permit. In recent years the plant has experienced disposal capacity deficiencies where wastewater threatened to overtop the levee. Mitigation measures including the diversion of domestic wastewater to the Hollister Industrial WWTP have been enacted to control the disposal limitations of the Hollister Domestic WWTP. The WDR permit does not require any specific programs, plans, or studies for the Hollister Domestic WWTP.

Table 2-4 summarizes the water quality requirements that are identified in the Hollister Domestic WDR (87–47) permit. In 2002, a failure of a pond levee at the Industrial WWTP resulted in discharge of 15 million gallons of wastewater to the San Benito River. As are result of the discharge violation the RWQCB issued a Cease and Desist Order (CDO) and an Administrative Civil Liability (ACL) Order. In addition, influent flows exceeded WDR limitations. The CDO and ACL applied additional restrictions and requirements to Hollister as described below.

Table 2-4: Hollister Domestic WWTP WDR Permit Water Quality Requirements

Parameter	Requirement
pH	Between 6.5 to 8.4
Dissolved Oxygen (DO)	DO concentration in facultative ponds should be maintained 2.0 mg/L or greater

Table 2-5 lists studies, plans, and reports required under the Hollister CDO No. R3-2002-0105, and ACL order No. R3-2002-0097.

Table 2-5: Hollister CDO and ACL Order Requirements

Requirement/Restriction	Comment/ Coverage
Sewer Connection Ban	Hollister was required to implement a formal sewer connection ban
Reduce suspended solids in the treated effluent	60 mg/L for 30 day average. Dual Powered Multiple Celled (DPMC) treatment pond was implemented by the City to meet requirement.
Construction and utilization of new headworks	New headworks project completed June 13, 2002
Full implementation of the Long-term Wastewater Management Program	Implementation by October 15, 2005
Construction Emergency Storage Basin	Basin was completed on December 26, 2002
Complete a hydrogeologic study assessing the wastewater disposal impacts around the Domestic and Industrial WWTP's	Study must be completed by May 20, 2004
Provide funding for water conservation efforts	Provide funding to Water Resource Association

Table 2-6 summarizes the wastewater quality characteristics of the Hollister Domestic WWTP.

Table 2-6: Hollister Domestic WWTP Effluent Characteristics

Wastewater parameter	Min.	Max.	Average
Kjeldahl N (mg/L)	27.4	37.6	31.4
Nitrate (mg/L)	8	11.1	9.3
Nitrite (mg/L)	0.05	0.14	0.1
Ammonia (mg/L)	26.8	33.2	28.7
Total Org. N (mg/L)	0.5	4.4	2.7
Total Dissolved Solids (TDS) (mg/L)	956	1304	1130
Sodium (mg/L)	209	460	283
Chloride (mg/L)	256	342	285
Sulfate (mg/L)	193	264	213

Notes:
1. The data listed in the table are recorded in the year 2003 (January to June)

2.4.2 Hollister Industrial

The Hollister Industrial WWTP is located west of downtown Hollister on the north side of the San Benito River and treats flow from a combined sewer collection system. The collected influent first travels through a headworks system entailing a coarse screen, a Parshall monitoring flume, diverting baffles, grates, and a grinder. Then the water flows through two standby primary sedimentation basins, two aeration ponds, and four disposal percolation ponds. There is also a pump station and 25 floating aerators.

The Industrial WWTP treats tomato cannery wastewater during the canning season and a portion of the City's domestic wastewater throughout the year. The canning season occurs each year from mid-June through mid-October. The WDR permitted average daily flow during canning season is 3.5 MGD of cannery wastewater and 0.18 MGD of domestic wastewater. During the non-canning season, the permitted domestic wastewater and storm water capacity is 1.72 MGD (RWQCB, September 2000).

Approximately 0.2 million gallons of storm water flow is discharged to the Industrial WWTP per inch of rainfall. The overall capacity of the plant is limited by the disposal capacity. Sustained disposal capacities of 2.6 MGD can be reached using relatively short flooding/drying cycles. The maximum expected cannery wastewater flow is estimated at 4.0 MGD (RWQCB, September 2000).

Secondary treated wastewater is disposed through evaporation and percolation ponds. The percolation ponds recharge the Hollister West and San Juan sub-basins which include municipal, domestic, industrial, and agricultural beneficial uses.

Table 2-7 summarizes the effluent water quality requirements that are identified in the Hollister Industrial WDR (00-020) permit. The WDR also identifies groundwater requirements down gradient of the disposal area associated with degradation of groundwater due to percolation of wastewater. The groundwater requirements address tastes and odors, radionuclides, and nitrates (5 mg/L (as N) down gradient of the disposal area).

Table 2-7: Hollister Industrial WWTP WDR Permit Water Quality Requirements

Parameter	Requirement
Total Settleable Solids	2.5 mL/L (Monthly Average)
Total Dissolved Solids (TDS)	1415 mg/L (Annual Average)
Sodium	250 mg/L (Annual Average)
Chloride	240 mg/L (Annual Average)
pH	Between 6.5 to 8.4
Dissolved Oxygen (DO)	DO concentration in aerated ponds and disposal pond shall not fall below 2.0 mg/L and 1.0 mg/L respectively.

Table 2-8 lists studies, plans, and reports required under the Hollister Industrial WDR permit.

Table 2-8: Hollister Industrial WWTP WDR Permit Required Studies

Required Study/ Report/ Plan	Comment/ Coverage
Long-term Wastewater Management Program	Program should include exclusion of combined sewer, analysis of fiscal resources, investigation of reclamation options. Implementation by October 15, 2005 per CDO.
Odor Management Plan for Industrial Plant	Submit plan by October 15, 2000 recording complaints, identifying corrective actions, and assessing odor control measures.
Salts Management Program	Salt management measures implemented by May 20, 2002.

Table 2-9 summarizes wastewater quality characteristics for the Hollister Industrial WWTP from January to June 2003. During this period, the WWTP did not meet the annual sodium and chloride effluent requirements to the percolation ponds. The remaining data for 2003 are needed to determine if the WWTP meets the annual average required by the WDR. If WDR requirements cannot be met, source control or other measures would be considered for implementation to comply with the requirements.

Table 2-9: Hollister Industrial WWTP Effluent Characteristics

Wastewater parameter	Min.	Max.	Average
Kjeldahl N (mg/L)[a]	N/A	N/A	4.8
Nitrate (mg/L)[b]	20.3	30.0	25.2
Nitrite (mg/L)[b]	0.2	0.8	0.5
Ammonia (mg/L)[b]	0.56	< 1.0	< 0.8
Total Org. N (mg/L)	N/A	N/A	5.4
Total Dissolved Solids (TDS) (mg/L)	1176	1380	1214
Sodium (mg/L)	240	372	276
Chloride (mg/L)	296	358	326
Sulfate (mg/L)[b]	196	210	203

Notes:
1. The data listed in the table are recorded in the year 2003 (January to May)
2. N/A – Not applicable

Footnotes:
a. Based on one data point in January 2003.
b. Based on two data points in January 2003.

2.4.3 San Juan Bautista

The San Juan Bautista WWTP serves San Juan Bautista and is located west of Hollister. The treatment facility consists of an influent bar screen and comminutor, flow-metering pump station, a 2.5-cell mechanically aerated pond that was converted to serve as a sequential batch reactor, pressure sand filters, and an ultraviolet light disinfection system with chlorination and dechlorination backup. The effluent limitation for daily flow averaged monthly is 0.27 MGD for dry weather, May through October, and the wet weather limitation is set at 0.50 MGD, November through April.

Average dry weather flows are approximately 0.21 MGD. The City currently has an NPDES permit for discharge to a drainage channel that empties into the Pajaro River. Water flow and quality is important in the Pajaro River because of sensitive wildlife habitat. The river is habitat for the threatened California Red Legged Frog and endangered Steelhead Trout.

Table 2-10 summarizes the water quality requirements identified in the San Juan Bautista WDR Order No. R-3-2003-0087, NPDES (CA0047902) permit.

Table 2-10: San Juan Bautista NPDES Permit Water Quality Requirements

Parameter	Requirement
BOD, 5-day	20 mg/L (Monthly Average)
Total Suspended Solids (TSS)	20 mg/L (Monthly Average)
Total Settleable Solids	0.1 mL /L (Monthly Average)
Total Dissolved Solids(TDS)	1,400 mg/L (Monthly Average)
Sodium (final)[a]	250 mg/L (Monthly Average)
Sodium (interim)[a]	350 mg/L (Monthly Average)
Chloride (final)[a]	200 mg/L (Monthly Average)
Chloride (interim)[a]	350 mg/L (Monthly Average)
pH	Within 7.0 to 8.3 in the drainage channel.
Sulfate	350 mg/L (Monthly Average)
Oil & Grease	10 mg/L (Monthly Average)
Total Coliform	23 MPN /100 mL
Chronic Toxicity	1.0 TUc (chronic toxicity unit)
Ammonia, Unionized	0.025 mg/L (Daily Maximum)
Copper	22 μg/L (Monthly Average)
Dissolved Oxygen (DO)	DO concentration to be depressed below 5.0 mg/L in the drainage channel.

Footnotes:
a. The interim sodium and chloride limitation is effective until July 13, 2006, when the final limitation becomes effective.

Table 2-11 lists studies, plans and reports required under the San Juan Bautista NPDES permit.

Table 2-11: San Juan Bautista NPDES Permit Required Studies

Required Study/ Report/ Plan	Comment/ Coverage
Initial Investigation Toxicity Reduction Evaluation (TRE) Work Plan	Toxicity detection
Salt Management and Reduction Plan	Salt reduction if TDS exceed effluent limitation.
Inflow and Infiltration (I/I) Management Program	Inflow and Infiltration (I/I) to Collection system.
Sewer System management Plan	Establish procedures to control and prevent overflows from collection system.
Program for the Septic Waste Loads	Waste incompatibility with the treatment process.

Table 2-12 summarizes the wastewater quality characteristics of the San Juan Bautista WWTP. The previous WDR permit (00-006) set a chloride concentration limitation of 200 mg/L which the City was unable to meet. Subsequently, the RWQCB issued a CDO (01-106) requiring San Juan Bautista to comply with the requirement. The CDO set an interim chloride effluent limit of 350 mg/l for 5 years to allow the discharge to meet the final effluent requirement. The interim limit set in the CDO was incorporated into the current WDR.

Effluent chloride concentrations of 318 mg/L currently meet the interim effluent limit of 350 mg/L. However, the final chloride limit of 200 mg/L is not being met. San Juan Bautista is implementing a water treatment plant (WTP) which will provide higher quality potable supply for the City. The WTP in conjunction with public education on water softening is expected to reduce the chloride effluent concentrations below the 200 mg/L limit.

Table 2-12: San Juan Bautista WWTP Effluent Characteristics

Wastewater Parameters (Monthly Averages)	Min.	Max.	Average
Influent Flow (MGD)	0.171	0.231	0.197
Effluent Flow (MGD)	0.166	0.198	0.182
Settled Solids (mL/L)	< 0.1	< 0.1	< 0.1
BOD 5-day (mg/L)	< 3.0	< 6.3	< 4.2
Suspended Solids (mg/L)	< 2.0	< 9.2	< 3.8
Chloride (mg/L)	282	345	318
Sodium (mg/L)	136	281	233
Hardness (mg/L)	436	500	463
Sulfate (mg/L)	133	184	158
TDS (mg/L)	1048	1268	1142
Ammonia - N (mg/L-N)	0.1	1.1	0.4
Nitrate (mg/L-N)	1.92	2.99	2.53
Nitrite (mg/L-N)	< 0.1	0.591	< 0.223

Notes:
1. The data listed in the table are for the year 2002 (January to December).

2.4.4 Sunnyslope County Water District

The Sunnyslope County Water District (SSCWD) manages two WWTP's for domestic wastewater treatment. The Ridgemark Estates WWTP's are located about three miles southeast of the City of Hollister and serves the Ridgemark Estates subdivision and the golf clubhouse/restaurant.

The Ridgemark Estates WWTP is comprised of two systems, denoted as Ridgemark I and Ridgemark II. The Ridgemark I WWTP was completed in 1974 and includes two treatment ponds and four disposal

ponds on 8.83 acres. The hydraulic retention time (HTR) through the two treatment ponds is approximately 40 days. The percolation capacity of the Ridgemark I WWTP is about 170,700 gpd. The percolation capacity of the disposal ponds are expected to decrease as silts and other solids plug the ponds. Disposal capacity is also reduced in the winter when groundwater levels in the basin are higher (Swanson International Engineering, March 2003).

The Ridgemark II WWTP was added in 1988 and has two treatment ponds and two disposal ponds on 7.74 acres. The two treatment ponds have a HRT of 30 days (at the design flow). Currently the HRT is approximately 70 days at a flow of 95,000 gpd. The disposal capacity of the two disposal ponds is limited and finite due to an underlying clay layer. Therefore, alternative disposal capacity is needed to meet the existing and future needs of the Ridgemark II WWTP. The Ridgemark WWTP's are connected by 2 miles of eight inch pipe to allow flow to be diverted from Ridgemark II (Pond 4) to Ridgemark 1 (Pond 5). The combined averaged discharge is approximately 0.26 MGD for the SSCWD system (Swanson International Engineering, March 2003).

The long HRT, which results in significant evaporation, is thought to be one factor that results in high TDS effluent concentrations. The high TDS concentrations are also a function of the TDS in the potable water supply and the use of water softeners to manage water hardness.

Wastewater disposal capacity is expected to be a challenge for both of the WWTP's in the near future as new developments are constructed and current disposal capacity is reduced due to plugging of the existing basins. Additional disposal capacity is necessary to meet the both existing needs and future disposal needs required to support natural growth and new developments. If additional disposal capacity is not constructed, new developments would need to be limited or the WWTP's would run the risk of overflows.

In December 2004, the Central Coast RWQCB issued a new WDR (R3-2004-0065) for the Ridgemark Estates WWTP's that replaced and updated the previous WDR (89-58). This WDR permit requires that the SSCWD develop a "Salt Management Plan", a "Long-Term Wastewater Management Plan" and a "Groundwater Assessment Work Plan". These studies and plans are currently under development and are anticipated to be completed by the dates specified in the WDR permit.

Table 2-13 summarizes the revised water quality requirements that are identified in the SSCWD WDR (R3-2004-0065) permit. Several groundwater quality requirements, due to percolation disposal activities, were also identified in the revised permit.

Table 2-13: Summary of Water Quality Requirements from SSCWD WDR Permit

Parameter	Interim Requirement	1/30/2005 Limit	1/30/2010 Limit
Total Dissolved Solids (TDS)	No interim limit	1,500 mg/L[a]	1,200 mg/L[a]
Sodium	No interim limit	300 mg/L[a]	200 mg/L[a]
Chloride	No interim limit	300 mg/L[a]	200 mg/L[a]
Nitrate	No interim limit	10 mg/L[a]	5 mg/L
Ammonia	No interim limit	10 mg/L[a,b]	5 mg/L[a,b]
BOD_5	No interim limit	60 mg/L[a]	30 mg/L[a]
TSS	No interim limit	60 mg/L[a]	30 mg/L[a]
Low pH	6.5	6.5	6.5
High pH	9.5	9.0	8.4

Notes:
a) 30-day average
b) Total ammonia as nitrogen

Table 2-14 and 2-15 summarize the wastewater quality characteristics of the Ridgemark I and II WWTP's for 2003. Water quality data for 2001 and 2002 also were available but are not included in the analysis.

Table 2-14: Ridgemark Estate I WWTP Effluent Characteristics

Wastewater parameter	Min.	Max.	Average
Chloride (mg/L)	550	620	586
Total dissolved Solids (mg/L)	1690	1880	1760
Nitrite (mg/L)	< 0.1	< 0.1	< 0.1
Nitrate (mg/L)	0.12	0.34	0.22
BOD (mg/L)	19	77	50
Soluble BOD (mg/L)	4.6	30	16.0

Notes:
1. The data listed in the table are recorded in March 2003 and May 2003 from 5 ponds.
2. The long HRT is thought to be one factor that leads to high TDS effluent concentrations.

Table 2-15: Ridgemark Estate II Wastewater Treatment Plant Effluent Characteristics

Wastewater parameter	Min.	Max.	Average
Chloride (mg/L)	700	770	730
Total dissolved Solids (mg/L)	1880	2020	1955
Nitrite (mg/L)	< 0.1	0.23	0.13
Nitrate (mg/L)	0.24	4.2	1.32
BOD (mg/L)	5	77	28
Soluble BOD (mg/L)	3.9	9.9	6.3

Notes:
1. The data listed in the table are recorded in March 2003 and May 2003 from 3 ponds.
2. The long HRT is thought to be one factor that leads to high TDS effluent concentrations.

2.4.5 Tres Pinos

The Tres Pinos County Water District (TPCWD) manages a wastewater collection, treatment, and disposal facility approximately seven miles southeast of Hollister. Previously, the TPCWD managed a WWTP that used two acres of treatment and percolation ponds that were in close proximity to Tres Pinos Creek. In the winter 1995/1996, high flows severely damaged two wastewater containment ponds. The ponds were rehabilitated but were destroyed again due to high creek flows during winter 1997/1998. The TPCWD was subsequently required to construct a new facility outside the floodplain. The new facilities consist of two clay lined aerated treatment ponds and two disposal ponds. The WWTP can serve a population of 750, limited to 0.06 MGD. The current population of the service area is around 350, yielding about 0.025 MGD of wastewater. The WDR permit does not require any specific programs, plans, or studies for the TPCWD WWTP. To date, effluent water quality data have not been collected.

Table 2-16 summarizes the water quality requirements that are identified in the Tres Pinos WDR (99-101) permit.

Table 2-16: Tres Pinos County Water District WDR Permit Water Quality Requirements

Parameter	Requirement
pH	Between 6.5 to 8.4
Dissolved Oxygen (DO)	DO concentration in the evaporation/percolation ponds should be greater than 1.0 mg/L

2.5 Water Use

Existing water use and future demand projections were recently evaluated in the GMP Update. These water use values were adopted for this feasibility study.

The major water uses in northern SBC are irrigated agriculture and M&I purposes. Irrigated agriculture accounts for approximately 80% of the water use in SBC. M&I water use is concentrated in Hollister and San Juan Bautista. Generally, water use for municipal purposes has steadily increased in proportion to population growth.

Estimates of future urban water demand were based on predicted future population as previously described and the assumption that water demand will decrease one percent per year per household for the next 20 years through improved conservation and efficiency. This assumption results in a reduction in water use from 420 gpd in 2002 to 344 gpd in 2022. New residential development is expected to use 312 gpd.

Projections of future agricultural water demand assume irrigated acreage in SBC will increase approximately 17,000 acres by 2022. A water use factor of 1.8 AF per acre with an effective precipitation of 0.4 feet and 85% irrigation efficiency was used to make the projection. Total annual water use in 2002 was approximately 68,000 acre-feet, which is expected to increase to about 89,000 acre-feet by 2022 (see Table 2-17) (Kennedy/Jenks Consultants, July 2003).

Table 2-17: Water Use Demands in 2002 and 2022

Water Use Category	Demands 2002 (AF/yr)[a]	Estimated Demands 2022 (AF/yr)[b]
Municipal & Industrial		
City of Hollister	4,834	5,670
City of San Juan Bautista	274	270
Unincorporated County	2,789	2,740
Non-Residential Demand	2,790	2,790
Subtotal M&I	**10,687**	**11,470**
Agricultural	**54,076**	**74,880**
Total of Other Demands[c]	**3,000**	**3,000**
Total M&I, Agricultural, and Other Demands	**67,763**	**89,350**

Source: Groundwater Management Plan Update for the SBC Part of the Gilroy-Hollister Groundwater Basin (Kennedy/Jenks Consultants, July 2003).

Footnotes:

a. Demands 2002 were based on a predicted demand per residential unit of 420 gallons per day. The number of persons per unit was adopted from California Department of Finance Table 1: County and State Population and Housing Estimate, Official State Estimates as of January 1, 2002 for SBC.

b. Estimated Demands for 2022 are based on Demands 2002 for existing population and Estimated Population 2022 for new growth.

c. Other demands account for conveyance losses and other minor uses.

2.6 Water Supply

The SBCWD water resources include groundwater, imported surface water, and local surface water. The SBCWD, a US Bureau of Reclamation Central Valley Project (CVP) water contractor, also participates in water transfers with other CVP contractors. Groundwater and imported CVP water are the major sources of water in the County. CVP contract water is considered a supplemental supply to SBC groundwater.

Both groundwater recharge and available surface water supplies vary during wet, normal, dry, and critically dry years. During wet years, groundwater recharge and available surface water exceed the water demand in SBC. This results in a net increase in the groundwater basin and higher groundwater levels. During dry years, groundwater recharge and available surface water is less than the annual water use. During these years, the groundwater pumping exceeds recharge resulting in a net decrease of groundwater in the basin.

Long term safe groundwater pumping and average CVP allocations are an indication of the water use that can been sustained. The safe yield of the groundwater basin was estimated to be 54,000 AFY (Kennedy Jenks, July 2003). However, this long term average water supply does not consider groundwater quality issues that either limits the beneficial use or impacts crop production. Therefore, only a portion of the safe groundwater yield can be used without impacts to crops or M&I use. The portion of safe groundwater yield with water quality concerns is unknown at this time. However, for evaluation purposes it is assumed that approximately 15,000 AFY of the safe yield has some water quality issue that limits the beneficial use or results in crop impacts. Therefore, the beneficial portion of the safe groundwater yield is 39,000 AFY. The long term average water supply of 80,900 AFY meets the current water use of 68,000 AFY. However, when considering water quality issues the beneficial supply is approximately 65,900 AFY, which does not meet existing water use. Table 2-18 summarizes these long term yields and allocations that make up the sustainable water supply. In addition, the table summarizes the estimates of the existing beneficial supply which includes a reduction to the safe groundwater yield.

The estimated 2022 water demand of 89,000 AFY cannot be met without development of additional water supplies. The following sections provide additional details on groundwater and surface water supplies, and describe the water quality setting in SBC.

Table 2-18: Long-term Average Water Supply

Local Supplies	Supply (AFY)	Beneficial Supply (AFY)
Groundwater	54,000[a]	39,000[b]
Agricultural CVP Supply (56% of Contracted Amount)[c]	19,900	19,900
M&I CVP Supply (85% of Contracted Amount)[c]	7,000	7,000
Total	**80,900**	**65,900**

Footnotes:

a. This value represents the safe groundwater yield (54,000 AFY (KJ, July 2003)) that does not consider water quality constraints that limit the beneficial use of groundwater or result in impacts to crops.

b. This value represents an estimate of the beneficial groundwater supply that can be used beneficially without impacts to crops or M&I use. The beneficial supply assumes 15,000 AFY of groundwater supply either cannot be beneficial used or results in crop impacts if the water is used.

c. Based on CALSIM II model results for the 2001 Level of Development.

2.6.1 Groundwater

Groundwater is the major water source for the Bolsa Southeast, Hollister West, and Tres Pinos sub-basins. In 2004, groundwater supplied an estimated 34,381 acre-feet of water, 76% of which was used for agricultural purposes. There are approximately 1,000 active agricultural wells in SBC. These wells are typically between 100 and 500 feet deep pumping from the alluvium terrace deposit zone, and upper part of the Purisima formation. Excessive groundwater pumping can cause subsidence resulting in less groundwater storage, which reduces groundwater supply during dry years when CVP water deliveries are reduced. During dry and especially during critically dry years, groundwater pumping is the primary source of water to meet demand.

Groundwater levels have essentially recovered from past over-pumping in the basin since the construction of the CVP distribution project in 1985. Water levels in the CVP service area (also known as Zone 6)

rose quickly during the mid-1990's with the addition of imported CVP water. Over the past few years, the groundwater table has actually approached or reached the land surface at several locations in the San Juan, Pacheco, and Hollister East sub-basins. High groundwater levels occur adjacent to areas of the San Benito River and its tributaries.

Localized high groundwater levels have become a concern. High groundwater levels can create saturated soil conditions that affect crop production, and compromise the structural foundations of buildings and roads through the risk of liquefaction during a seismic event. The severity of the high groundwater levels has forced some farmers to install tile drains in their fields. High groundwater levels also reduces soil percolation of treated wastewater effluent, which has become a problem for both Hollister WWTP's, as well as other WWTP's and rural septic system leach fields.

The Bolsa sub-basin, which does not receive CVP water, has consistently experienced relatively low groundwater levels due to significant agricultural pumping. Groundwater is relatively shallow in the southern and western parts of the San Juan Valley. Poor soil drainage is an on-going problem in the western and central parts of the San Juan Valley. Shallow clay layers at depths ranging from 3 to 12 feet below ground surface create an impervious layer that impedes the percolation of rainfall and irrigation water and creates a shallow perched water table.

The groundwater storage capacity of the Gilroy-Hollister Groundwater Basin within SBC is about 500,000 acre-feet within 200 feet of the ground surface. The groundwater basin is replenished by rainfall percolation, direct runoff, surface water from reservoirs, CVP water percolation, deep percolation of irrigation water, and treated wastewater effluent. The Hernandez and Paicines Reservoirs in the San Benito River watershed store runoff during the wet months with releases during the dry season, which promote groundwater recharge. Based on a water balance study using data from 1997 to 2002, the average annual safe groundwater yield is approximately 54,000 acre-feet (Kennedy Jenks, July 2003).

2.6.2 Surface Water

Surface water availability is a function of hydrologic cycles with lower yield during dry years. The CVP supply, an import surface water supply, also may be reduced based on the characteristics of the water supply year and environmental commitments. Surface water deliveries provide most of the supply in the Pacheco and Hollister East sub-basins. During wet years, surface water is managed to enhance groundwater recharge, which allows the groundwater supply to recover from increased pumping that is necessary during dry years.

Surface water supplies in San Benito County include CVP water from the U.S. Bureau of Reclamation (USBR) and local surface water reservoirs (Hernandez, Paicines, and San Justo Reservoirs). CVP water is used for a variety of beneficial uses including agricultural, municipal, and industrial use and groundwater recharge. Hernandez and Paicines reservoirs are used to capture storm runoff and river flows in order to facilitate groundwater recharge activities. These surface water supplies are described in detail in the following sections.

CVP Water (San Felipe Unit)

The CVP San Felipe distribution system was constructed in the mid 1980's to meet water supply needs and water quality objectives necessary to maintain the local economy. The SBCWD purchases CVP water from the USBR for agricultural, municipal, and industrial use. This water is imported through the Hollister Conduit from the San Luis Reservoir, part of the San Felipe Unit of the CVP that is owned by the USBR. The Hollister conduit terminates at San Justo Reservoir (owned by the USBR), 3 miles southwest of Hollister. San Justo Reservoir provides elevated operational storage for the SBCWD's CVP system. The capacity of San Justo Reservoir is 11,000 acre-feet and is used exclusively to store CVP water. The USBR also owns the San Juan lateral which provides supply to the San Juan Valley.

The San Felipe distribution system (owned by the SBCWD) consists of twelve subsystems comprised of 120 miles of pressurized pipeline laterals delivering CVP water to customers in the Pacheco, Bolsa Southeast, San Juan, Hollister East, Hollister West, and Tres Pinos sub-basins. The San Felipe distribution system also includes facilities to release CVP water at controlled rates to local creeks including the Pacheco Creek, Santa Ana Creek, and the Tres Pinos Creek, as well as the San Benito River to supplement groundwater recharge.

The CVP service area is designated as Zone 6 (CVP zone of benefit) and is the only portion of SBC that can receive CVP water. Within Zone 6, groundwater and CVP water meet water demand. CVP water is considered a supplemental supply for groundwater. About 26,271 acre-feet of San Felipe water was used in SBC during the 2004 water year. This includes 20,267 acre-feet directly used by agricultural customers as shown below in Table 2-19.

Seventy-seven percent of the San Felipe water was used for agricultural irrigation; 14% was used for domestic, municipal, and industrial purposes; 4% was percolated along local streams to recharge the groundwater supply; and 5% was lost to evaporation and seepage from the San Justo Reservoir. Domestic use is primarily used for irrigation at rural residences. The Stonegate subdivision treats San Felipe water for direct potable use. In November 2002, Hollister and SSCWD finished construction of a CVP water treatment plant to provide high quality supply for M&I use.

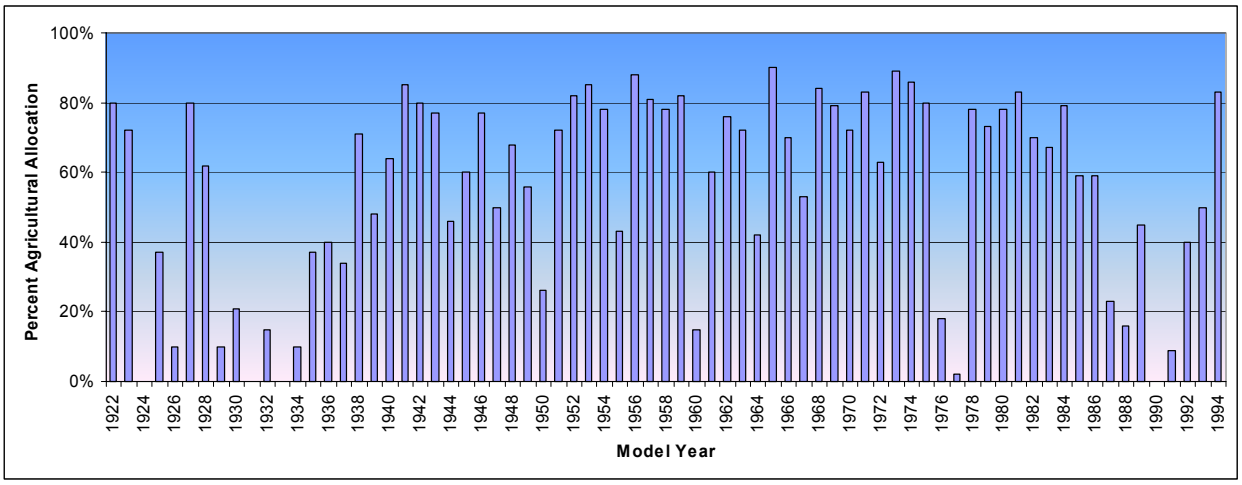
Table 2-19: Irrigation Areas and Supplies for San Felipe Water for the 2004 Water Year

	Agricultural		Domestic		Municipal		Sub-Total of Subbasin Irrigated Area (acres)	Sub-Total of Subbasin Supply (acre-ft)
Subbasin	Irrigated Acres	Supply (acre-ft)	Irrigated Acres	Supply (acre-ft)	Irrigated Acres	Supply (acre-ft)		
Hollister East	8,885	8,309	1,600	87		2,330	10,485	10,726
San Juan	5,311	6,905	619	31	200	421	6,130	7,357
Pacheco	3,847	3,578	344	29			4,191	3,607
Tres Pinos	319	194	792	11	591	762	1,702	967
Hollister West	480	541	65	19	271	55	816	615
Bolsa Southwest	308	740					308	740
Total	**19,150**	**20,267**	**3,420**	**175**	**1,062**	**3,569**	**23,632**	**24,012**

Source: SBCWD Annual Groundwater Report for Water Year 2004 (Gus Yates December 2004)
Notes:
1. The Bolsa, Paicines, and Tres Pino Creek Valley subbasins received zero CVP water in 2004.

The SBCWD currently has a contract entitlement for 35,550 acre-feet per year for agriculture and 8,250 acre-feet per year for M&I use. This contract expires during 2027. The CVP supply is dependent on annual hydraulic conditions, which can vary greatly from year to year. San Felipe agricultural water delivery can be significantly reduced due to state and federal policies that now allocate some of the agriculture water for environmental purposes. Recent computer modeling (CALSIM II) for the CVP system was completed by the DWR and USBR. Figure 2-6 shows the south of delta (Sacramento-San Joaquin River Delta) CVP deliveries that were predicted for the 2020 Level of Development (LOD).

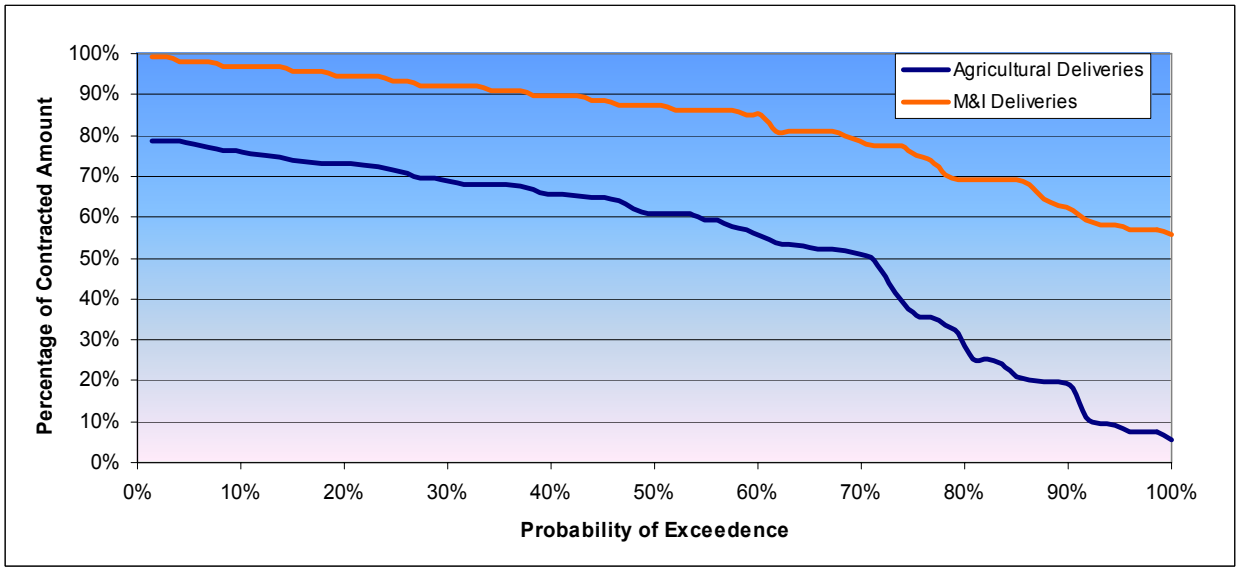
Figure 2-6: South of Delta CVP Allocations from the CALSIM II Modeling



Note:
1. Based on 2020 Level of Development.
2. The DWR/USBR has also modeled the 2001 Level of Development. Results are available at http://modeling.water.ca.gov/
3. CALSIM II Model results also include predicted allocations for M&I use, exchange contractors, and refuge.

Figure 2-7 is a representation of deliveries and cutbacks that can be expected over a number of years (Based on CALSIM II Model - 2020 LOD). The 50% probability of exceedence indicates that every other year CVP water is expected to have allocations greater than 61% (21,600 AFY) of agriculture and 87% (7,200 AFY) for M&I. The 50% probability also indicates that CVP allocations are expected to be below the 61% and 87% allocation for agriculture and M&I every other year. The 75% probability of exceedence indicates that every three out of four years the agricultural and M&I allocations are expected to exceed the 36% (12,800 AFY) and 75% (6,200 AFY) of the contracted amount, respectively. On average, the allocations are expected to be below these levels one out of every four years.

Figure 2-7: Simulated CVP Deliveries to SBCWD



Notes:
1. Data source: MWH, *Using CALSIM II for Long-Term Planning*, October 2003.
2. Based on 2020 Level of Development.

The long term SBCWD average annual CVP deliveries for agriculture (2020 LOD) is estimated to be 53% (18,900 AFY) of the contracted entitlement. The long term SBCWD average annual M&I supply (2020 LOD) is estimated to be 83% (6,900 AFY) of the contracted entitlement.

Hernandez and Paicines Reservoirs

Hernandez Reservoir has a capacity of 18,300 acre-feet and is located on the San Benito River at a crest elevation of about 2,394 feet. It's about 45 miles southeast of Hollister and stores runoff from the upper San Benito River watershed. The tributary watershed of Hernandez Reservoir is about 85 square miles and the reservoir itself covers about 610 acres. Paicines Reservoir has an approximate capacity of 2,870 acre-feet and is an off stream reservoir between the San Benito River and Tres Pinos Creek, approximately 5 miles south of Tres Pinos. The reservoir is at an elevation of approximately 680 feet.

The Pacines Reservoir is filled by water diverted from the San Benito River, with some water coming from water stored and released from Hernandez Reservoir. The stored water is then released for percolation to Tres Pinos Creek and the San Benito River to provide additional groundwater recharge during the summer. In addition to recharging the groundwater during summer, the reservoirs also provide flood protection.

2.6.3 Water Quality

San Benito County's groundwater can be generally characterized by very high Total Dissolved Solids (TDS), chloride, sodium, sulfate, boron, and hardness. It is recognized that groundwater quality is not consistent throughout the basin. High quality groundwater with relatively low salt concentration is available in parts of the groundwater basin. Water quality parameters vary due to hydrogeologic characteristics and other factors such as wastewater percolation and groundwater recharge projects. Groundwater salinity, nitrate, hardness, and trace elements are water quality parameters of concern as they occasionally exceed secondary drinking water standards, which address the aesthetics of drink water.

Imported surface water (CVP San Felipe Water) has generally better quality compared to groundwater. However, consistent with the importation of any surface water supply, it results in the addition of salts into the groundwater basin. CVP water consistently meets the water quality guidelines for unrestricted agricultural use and is also suitable for M&I use following treatment. M&I use of CVP water would eliminate the need for water softeners as CVP water has relatively low hardness. Table 2-20 summarizes the water quality of the CVP supply.

Table 2-20: CVP (San Felipe Unit) Water Quality

Water Quality Parameter	Avg	Max	Min
Nitrate mg/L	3.1	6.3	0.1
Nitrite mg/L	<0.005	0.02	<0.005
Ammonia Nitrogen N mg/L	0.027	0.16	0.01
Total Salts (TDS) mg/L	286	414	166
Sodium mg/L	45	81	16
Chloride mg/L	70	114	10
Sulfate mg/L	46	65	130
Boron mg/L	0.2	0.5	0.1
Total Hardness (as CaCO3) mg/L	106	136	75

Source: San Juan Bautista Area Water Reclamation Study by Montgomery Watson Harza, May 2002.

Salinity

A significant amount of salt is added to SBC every year as shown in Table 2-21. Large amounts of salt in a water supply can affect a variety of crops and impede industrial uses. Salinity increases in SBC result from agricultural soil amendments, percolation of creeks and rivers, the importation of CVP water, groundwater inflows, agricultural fertilizers, municipal wastewater, urban fertilizers and chemicals, atmospheric deposition, and rural septic systems.

The SBCWD's *Annual Groundwater Report for Water Year 2004* (Yates, December 2004) estimated that salt increased by approximately 40,523 tons in 2004. Imported CVP water accounted for 10,000 tons of the total salt added to the basin. Soluble fertilizers and soil amendments are commonly applied to enrich the soil and provide crop nutrients. Evaporation and transpiration remove water, leaving salts behind. Percolating water from rainfall and irrigation inefficiencies move these salts to the groundwater. Salts are also added from M&I water use and are added to the groundwater basin through wastewater effluent percolation.

M&I water softening is also a contributor to the annual salt influx. Groundwater in SBC is considered "very hard," meaning it naturally has a high concentration of calcium and/or magnesium. Hard water is not desirable for domestic and many industrial application. Water softeners are used to remove these minerals. Water softening is an ion-exchange process where divalent cations from calcium and/or magnesium are replaced with monovalent cations, namely sodium or potassium. Sodium chloride and potassium chloride are the most common salts used for water softening. A byproduct of the process is a brine waste that is discharged into the sewer system, which ultimately enters the groundwater basin.

Table 2-21: 2004 Annual Salt Balance for the Hollister Groundwater Basin

	Annual Salt Load (tons)
Percolation from Creeks and Rivers	9,838
San Felipe Water	10,000
Agricultural Soil Amendment (gypsum)	8,860
Groundwater Inflow	8,103
Agricultural Fertilizers	5,167
Municipal Wastewater	2,814
Urban Fertilizers and Chemicals	1,008
Atmospheric Deposition	183
Rural Septic Systems	137
Total Added	**46,110**
Sources of Salt Removal	
Groundwater Discharge to Creeks and Rivers	3,784
Local Rainfall Runoff	1,803
Total Removed	**5,587**
Net Basin Salt Increase	**40,523**

Source: Yates, Gus. 2004. Annual Groundwater Report for the Water Year 2004, (December 2004, Final), Prepared for San Benito County Water District, Hollister, California.

A membrane filtration water treatment plant began operation in January 2003 to improve the quality of water delivered to customers in Hollister and the SSCWD service areas. Operation of the plant, which treats San Felipe water for municipal use, is expected to improve groundwater quality over time by eliminating the need for water softeners. The design capacity of the plant is 3 MGD, which could

potentially produce 3,360 acre-feet per year of municipal supply. The SSCWD plans to construct a second water treatment plant in the future providing 2 MGD of treated water, to further decrease the salt content entering the Ridgemark WWTP's.

San Juan Bautista is considering implementation of a small membrane filtration plant to treat CVP water for M&I use, the plant would have an initial capacity of 0.75 MGD with upgrade potential to 1.0 MGD. The proposed location is near the intersection of San Juan Hollister Road and Mission Vineyard Road. The use of CVP water does bring more salt into the Basin, however, because of its superior quality, water softeners are not required, which could result in a net reduction in annual salt additions to the basin. Lower salt concentrations in wastewater would make the use of recycled water more attractive.

Other Water Quality Issues

The concentration of nitrate in source water is an important concern from both an agricultural and public health perspective. Elevated nitrate levels are largely the result of fertilizers, livestock waste, and wastewater effluent. Concentrations exceeding the California drinking water standard of 45 milligrams per liter have been found in 13 wells in SBC since 1950. Two potable water supply wells were abandoned in 1997 due to high nitrate concentrations.

Some agricultural crops commonly grown in SBC are sensitive to certain constituents found in groundwater and recycled water in the basin. These constituents can be toxic to sensitive plants and in the case of sodium can cause degradation of soil quality. Elevated boron, chloride and sodium concentrations can cause stunting, foliar symptoms and defoliation in sensitive crops, like deciduous orchards. Native concentrations of boron at injurious levels occur in groundwater in the northeastern area of the basin. Soil related sodium problems are usually managed by applying soil amendments like gypsum. The use of soil amendments to deal with sodium related problems is a common practice that adds salt to the basin.

Section 3

Market Assessment

3 Market Assessment

This section focuses on the potential market opportunities to use recycled water from the City of Hollister (Hollister) wastewater treatment plants (WWTP), the Sunnyslope WWTP (Ridgemark I and II WWTP's), the City of San Juan Bautista (San Juan Bautista) WWTP, and vegetable processors (Natural Selection, Pride of San Juan, and Coke Farms). The combined existing flow from these WWTP's is approximately 6.1 mgd during the cannery season (mid-June to mid-October) and 3.0 mgd during the non-cannery season. The vegetable processors total flow is approximately 82,000 gpd from April to November. The annual flow from the WWTP's and vegetable processors is approximately 4,550 AFY and represents the potential recycled water supply. Future potential recycled water supply could increase to approximately 6,700 AFY. The potential recycled water supply estimate should be considered preliminary, as other factors such as irrigation season and seasonal storage, as well as potential contributions from other small surrounding communities, have not been evaluated.

The purpose of this section is to document the methodology and results of the market assessment. In addition, the regulatory setting related to recycled water use is summarized. The market assessment identifies the potential customers or market areas that could be served by a recycled water project. The market assessment is used to identify potential recycled water demand, develop design flows, and investigate water quality requirements for a recycled water project. Potential recycled water markets include urban, agricultural, environmental, and groundwater recharge.

This market assessment represents a preliminary review of the potential markets. In the next phase of the project, more detailed fieldwork would be performed to fully identify demand and flow requirements, operational needs, and other design related characteristics. Public outreach and workshops will be key for gathering information and attaining public support for implementation of a recycled water project. Coordination and negotiating formal agreements with water retailer or individual customers will also be key to the success of a project.

3.1 Recycled Water Regulations

In general, recycled water operations in California are governed by California Department of Health Services (DHS) regulations and guidelines. Current regulations are compiled in the publication California Health Laws Related to Recycled Water ("The Purple Book") updated in June 2001. The Purple Book consists of excerpts from the Health and Safety Code, Water Code, and Titles 22 and 17 of the California Code of Regulations (CCR). Draft regulations include Groundwater Recharge Reuse Draft Regulations that were revised in July 2003.

The primary goal of the regulations is to protect public health. The regulations do not address any customer needs or goals related to water quality or specific operations. There are four different qualities of recycled water that can be produced under Title 22. The definition of recycled water use categories contained within Title 22 are presented in Table 3-1.

Other noteworthy guidelines and standards include the National Water Research Institute (NWRI) *Ultraviolet (UV) Disinfection, Guidelines for Drinking Water and Water Reuse* and the requirements for organic certification. The NWRI guidelines identify turbidity and UV transmittance criteria for UV disinfection projects. Typically, the DHS adopts the NWRI guidelines for projects that use UV disinfection.

Table 3-1: Title 22 Recycled Water Types

Title 22 Recycled Water	Definition
Undisinfected Secondary Recycled Water	"Undisinfected Secondary Recycled Water" means oxidized wastewater.
Disinfected secondary - 2.2 Recycled Water	"Disinfected secondary - 2.2 Recycled Water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.
Disinfected secondary - 23 Recycled Water	"Disinfected secondary - 23 Recycled Water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed an MPN of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30-day period.
Disinfected Tertiary Recycled Water	"Disinfected Tertiary Recycled Water" means a filtered and subsequently disinfected wastewater that meets the following criteria: 1. The filtered wastewater has been disinfected by either: a. A chlorine disinfection process following filtration that provides a CT value (the product of total chlorine residual and modal contact time measured at the same point) of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or b. A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration. 2. The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters. 3. The filtered wastewater has been disinfected by either: a. A chlorine disinfection process following filtration that provides a CT value (the product of total chlorine residual and modal contact time measured at the same point) of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or b. A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration. 4. The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters. "Filtered wastewater" means an oxidized wastewater that meets the criteria in subsection 1 or 2: 1. Has been coagulated and passed through natural undisturbed soils or a bed of filter media pursuant to the following: a. At a rate that does not exceed 5 gallons per minute per square foot of surface area in mono, dual or mixed media gravity, upflow or pressure filtration systems, or does not exceed 2 gallons per minute per square foot of surface area in traveling bridge automatic backwash filters; and b. So that the turbidity of the filtered wastewater does not exceed any of the following: i) An average of 2 NTU within a 24-hour period; ii) 5 NTU more than 5 percent of the time within a 24-hour period; and iii) 10 NTU at any time 2. Has been passed through a microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed any of the following: a. 0.2 NTU more than 5 percent of the time within a 24-hour period; and b. 0.5 NTU at any time.

Source: DHS, *California Health Laws Related to Recycled Water ("The Purple Book"),* June 2001.

Use of recycled water for the organic production of agricultural crops has been limited in the past, as some private organic certification agencies restricted recycled water use. Generally, organic standards and requirements vary depending on the certifying agency. To provide some uniformity, the US Department of Agriculture developed organic production standards under the National Organic Program

(NOP) to provide federal guidance on organic food production. The NOP regulations do not limit the use of recycled water for organic production. The NOP standard went into effect in October 21, 2002 and requires that all organic products sold in the U.S. must meet the Organic Food Production Act of 1990 and the National Organic Program (NOP) regulations.

In California, the California Department of Food and Agriculture (CDFA) and the California Certified Organic Farmers (CCOF) provide organic certification programs. The CDFA California Organic Certification Program (COCP) currently allows recycled water to be used for crop irrigation, including organic crop irrigation. The Health and Safety Code of CDFA states the following about organic foods in Section 110815; "Water, including substances dissolved in water, shall not be prohibited material, even if it contains incidental contamination from a prohibited material, if the prohibited material was not added by, or under the direction or control of, the producer, handler, processor or retailer."

The CCOF is an independent certifying organization of organic farms that has been certifying organic growers since 1973. The CCOF has adopted the USDA NOP standards for organic producers and has included the standards in CCOF Handbook 2002 - Manual Two dated January 2003. As mentioned previously, the NOP Standards do not limit the use of recycled water for organic food production.

3.1.1 Uses of Recycled Water

Specific uses and application of recycled water for each of the four Title 22 recycled water types are summarized in Table 3-2. For groundwater recharge projects, there are additional treatment requirements summarized in the following section. With the exception of groundwater recharge projects, disinfected tertiary recycled water is the most stringent Title 22 recycled water classification and has the greatest number of potential uses. Disinfected tertiary recycled water is commonly referred to as unrestricted reuse.

In the absence of any site-specific concern held by a local or state health or water quality officer, all uses as outlined below in Table 3-2 are permitted. The uses for recycled water do not apply to the use of recycled water onsite at a water recycling plant, or wastewater treatment plant, provided access to the public to the area of onsite recycled water use is restricted.

Table 3-2: Recycled Water Uses Allowed in California

Recycled Water Use	Treatment Level			
	Disinfected Tertiary Recycled Water	Disinfected Secondary-2.2 Recycled Water	Disinfected Secondary-23 Recycled Water	Undisinfected Secondary Recycled Water
Irrigation				
Food crops where recycled water contacts the edible portion of the crop, including all root crops	Allowed[d]	Not allowed	Not allowed	Not allowed
Parks and playgrounds	Allowed[d]	Not allowed	Not allowed	Not allowed
School yards	Allowed[d]	Not allowed	Not allowed	Not allowed
Residential landscaping	Allowed[d]	Not allowed	Not allowed	Not allowed
Unrestricted access golf courses	Allowed[d]	Not allowed	Not allowed	Not allowed
Any other irrigation uses not prohibited by other provisions of the California Code of Regulations	Allowed[d]	Not allowed	Not allowed	Not allowed
Food crops where edible portion is produced above ground and not contacted by recycled water	Allowed	Allowed	Not allowed	Not allowed
Cemeteries	Allowed	Allowed	Allowed	Not allowed
Freeway landscaping	Allowed	Allowed	Allowed	Not allowed
Restricted access golf courses	Allowed	Allowed	Allowed	Not allowed
Ornamental nursery stock and sod farms	Allowed	Allowed	Allowed	Not allowed
Pasture for milk animals	Allowed	Allowed	Allowed	Not allowed
Nonedible vegetation with access control to prevent use as a park, playground or school yard	Allowed	Allowed	Allowed	Not allowed
Orchards with no contact between edible portion and recycled water	Allowed	Allowed	Allowed	Allowed
Vineyards with no contact between edible portion and recycled water	Allowed	Allowed	Allowed	Allowed
Non food-bearing trees, including Christmas trees not irrigated less than ad days before harvest	Allowed	Allowed	Allowed	Allowed
Fodder crops (e.g. alfalfa) and fiber crops (e.g. cotton)	Allowed	Allowed	Allowed	Allowed
Seed crops not eaten by humans	Allowed	Allowed	Allowed	Allowed
Food crops that undergo commercial pathogen-destroying processing before consumption by humans	Allowed	Allowed	Allowed	Allowed
Ornamental nursery stock, sod farms not irrigated less than ad days before harvest	Allowed	Allowed	Allowed	Allowed
Supply for Impoundment				
Non-restricted recreational impoundments, with supplemental monitoring for pathogenic organisms	Allowed[b]	Not allowed	Not allowed	Not allowed
Restricted recreational impoundments and publicly accessible fish hatcheries	Allowed	Allowed	Not allowed	Not allowed
Landscape impoundments without decorative fountains	Allowed	Allowed	Allowed	Not allowed
Supply for Cooling or Air Conditioning				
Industrial or commercial cooling or air conditioning involving cooling tower, evaporative condenser, or spraying that creates a mist	Allowed[c]	Not allowed	Not allowed	Not allowed
Industrial or commercial cooling or air conditioning not involving a cooling tower, evaporative condenser, or spraying that creates a mist	Allowed	Allowed	Allowed	Not allowed
Other Uses				
Groundwater recharge	See Section 3.1.2			
Flushing toilets and urinals	Allowed[d]	Not allowed	Not allowed	Not allowed

Recycled Water Use	Treatment Level			
	Disinfected Tertiary Recycled Water	Disinfected Secondary-2.2 Recycled Water	Disinfected Secondary-23 Recycled Water	Undisinfected Secondary Recycled Water
Priming drain traps	Allowed[d]	Not allowed	Not allowed	Not allowed
Industrial process water that may contact workers	Allowed[d]	Not allowed	Not allowed	Not allowed
Structural fire fighting	Allowed[d]	Not allowed	Not allowed	Not allowed
Decorative fountains	Allowed[d]	Not allowed	Not allowed	Not allowed
Commercial laundries	Allowed[d]	Not allowed	Not allowed	Not allowed
Consolidation of backfill material around potable water pipelines	Allowed[d]	Not allowed	Not allowed	Not allowed
Artificial snow making for commercial outdoor uses	Allowed[d]	Not allowed	Not allowed	Not allowed
Commercial car washes, including hand washes if the recycled water is not heated, where the general public is excluded from the washing process	Allowed[d]	Not allowed	Not allowed	Not allowed
Industrial boiler feed	Allowed	Allowed	Allowed	Not allowed
Nonstructural fire fighting	Allowed	Allowed	Allowed	Not allowed
Backfill consolidation around nonpotable piping	Allowed	Allowed	Allowed	Not allowed
Soil compaction	Allowed	Allowed	Allowed	Not allowed
Mixing concrete	Allowed	Allowed	Allowed	Not allowed
Dust control on roads and streets	Allowed	Allowed	Allowed	Not allowed
Cleaning roads, sidewalks and outdoor work areas	Allowed	Allowed	Allowed	Not allowed
Industrial process water that will not come into contact with workers	Allowed	Allowed	Allowed	Not allowed
Flushing sanitary sewers	Allowed	Allowed	Allowed	Allowed

Footnotes:

a. Refer to the full text of the latest version of Title-22: California Water Recycling Criteria. This chart is only a guide to the June 2001 version. Summary updated from Water Reuse Association located online at http://www.watereuse.org/Pages/usestable.html
b. With "conventional tertiary treatment." Additional monitoring for two years or more is necessary with direct filtration.
c. Drift Eliminators and biocides are required if public or employees can be exposed to mist.
d. Recycled water shall be a disinfected tertiary recycled water, except that for filtration pursuant to Section 60301.320(a) coagulation need not be used as part of the treatment process provided that the filter effluent turbidity does not exceed 2 NTU, the turbidity of the influent to the filters is continuously measured, the influent turbidity does not exceed 5 NTU for more than 15 minutes and never exceeds 10 NTU, and that there is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed 5 NTU for more than 15 minutes.

3.1.2 CCR-Title 22 Revisions – Groundwater Recharge

DHS released Title 22, Division 4, Chapter 3 draft regulations addressing groundwater recharge. The draft regulations represent the DHS current thinking on groundwater recharge using recycled water; however, these draft regulations are not law. The following table summarizes the requirement of the draft regulation that was revised in July 2003.

Table 3-3: Draft Requirements for Groundwater Recharge Reuse

Constituent	Draft Regulation
Microorganisms	Water must be either filtered wastewater or disinfected tertiary recycled water. Treated wastewater must be retained underground for 6 months (Surface Spreading) and 12 months (Injection Project) and shall not be extracted within 500 lateral feet (Surface Spreading) to 2,000 lateral feet (Injection Project) from a point of recharge.
Nitrogen	The total nitrogen of recycled water or blended water shall not exceed 5 mg/L as nitrogen. Surface spreading projects may be granted a higher level if nitrate and nitrite levels consistently meet drinking water standards.
Regulated Contaminants	Recycled water must comply with the following: Primary drinking water MCLs[a]. Action level for lead and copper. Disinfection byproduct MCLs. Secondary drinking water MCLs[a].
Total Organic Carbon (TOC)	For direct injection projects the entire wastewater stream shall be treated with reverse osmosis. For surface spreading projects, RO treatment is required if filtered wastewater cannot consistent meet a maximum TOC of 16 mg/L. Recycled water TOC shall be less than 0.5 mg/L divided by the maximum average recycled water contribution (RWC) specified by the Department or be treated by reverse osmosis to do so.

Footnotes:
a. Refers to California Code of Regulations Title 22, Division 4, Chapter 15.

Generally, groundwater recharge projects require reverse osmosis treatment to reduce TOC concentrations. The high cost of reverse osmosis and the disposal of the brine waste stream have limited groundwater recharge projects except in locations where brine disposal is readily available and alternative water supplies are more costly. For more information on this topic, refer to the DHS website at http://www.dhs.ca.gov/ps/ddwem/.

3.1.3 General Regulatory Implementation Steps for Water Recycling Projects

Implementation of a recycled water project requires submission of a Title 22 Engineers Report to the RWQCB and DHS. The purpose of the Engineers Report is to ensure that the project is planned and designed consistent with State Regulations and in accordance with recycled water criteria for production, distribution, and reuse. Approval of recycled water projects varies between the RWQCB's. In the RWQCB Central Coast Region, it is expected that a recycled water project would be permitted under the WDR permits. The requirements or permit may incorporate quality, treatment, use, reliability, and monitoring requirements.

3.2 Urban Market

This section identifies the methodology used to evaluate the potential for urban recycled water use and summarizes the potential customers and demands within the northern SBC region. Previous recycled water reports and some water use records were obtained and reviewed to identify potential urban customers and overall reuse potential.

The primary recycled water uses in an urban setting are landscape irrigation and industrial uses. Landscape irrigation includes school yards, golf courses, parks, and highway medians. Some communities have dual plumbed systems that allow for recycled water use for toilets and outdoor residential uses. These types of residential uses requiring a dual plumbed system are not considered feasible for existing urban uses given the cost required to retrofit the existing water distribution system. However, dual plumbing for new developments could be a cost effective option for increasing recycled water use. Dual plumbed systems could be constructed to allow for connection of recycled water for non-

potable uses such as toilets and/or landscape irrigation. SBC has a current water conservation plan (Resolution 92-82) requiring, as appropriate, the installation of dual plumbing for new developments.

The urban market assessment focuses on the primary uses identified above. In order to comply with public health requirements associated with the proposed urban recycled water uses, the recycled water produced would need to be disinfected tertiary recycled water as defined by Title 22.

Tertiary treated recycled water is well suited for landscape irrigation assuming that water quality constituents do not exceed plant tolerance levels. Industrial use involves a number of considerations. Dual plumbing may be required given that potable demand is usually occurring. Also, it may be necessary to separate recycled water from process water uses. Food processors may not be interested in using recycled water because of public perception issues. Even though this analysis considers the industrial users identified as part of the potential market, additional effort would be required to further assess the capability of each individual industrial customer to use recycled water within their operation. The cost of providing recycled water also would be an issue.

3.2.1 Urban Methodology

Typically, the approach used to assess potential urban market demand for recycled water involves identifying potential customers/users, collecting and reviewing existing water use records, projecting potential monthly and annual recycled water demand, and estimating peak demand to develop system design flow requirements.

Potential urban customers in select areas in the region were identified in the following reports:

- San Juan Bautista Area Water Reclamation Study, MWH, May 2002.
- Sunnyslope County Water District – Recycled Water Study, MWH, November 2001.
- Northeast Fairview Development – Recycled Water Study, MWH, April 2001.

Additional information and data on potential customers near the Hollister WWTP were obtained from Hydroscience. SSCWD also provided additional water use data for non-potable uses within their service area. These reports and data were used as the basis to estimate potential demand for the potential urban customers. However, the information and data from the various sources were not consistent. Therefore data gaps were filled using a consumptive use methodology and assumptions based on previous experience.

A consumptive use methodology can be used to estimate water demand for landscape irrigation. Water demand would be estimated by applying crop coefficients (Kc) to reference evapotranspiration (ETo). ETo is the amount of water lost to evapotranspiration (ET) from a 4 to 6 inch tall cool season grass growing in an open field condition. Kc is determined from field research. Warm season turf grass would likely be the predominate grass type planted in the project area for park and school uses.

Generally, three planting conditions occur in landscaped areas: 1) areas planted solely to turf; 2) areas planted to turf including trees; and 3) areas planted solely to trees and ornamental shrubs.

A different approach is often used for estimating water needs for landscape plants, which involves the development of landscape evapotranspiration and landscape coefficient formulas. These formulas consider a number of factors unique to landscape plantings. These factors include plant type/species, density and microclimate. Soil water availability is a major factor in determining the rate of water loss (ET rate) from landscape plants. Generally, landscape plants will consume water at a maximum rate as long as it's readily available. The intent of landscape irrigation management is to apply only the amount

of water needed to maintain health, appearance and reasonable growth, and maximum ET is not required to accomplish this goal. Landscape net irrigation requirements are often similar to those of turf grass and it has been assumed to be similar for purposes of estimating water demand for this analysis. The water needs of most tree species planted in turf are generally met by the relatively high turf water demands.

The estimated reference crop ET and crop coefficients for warm season grass (Bermuda grass turf) is summarized below in Table 3-4.

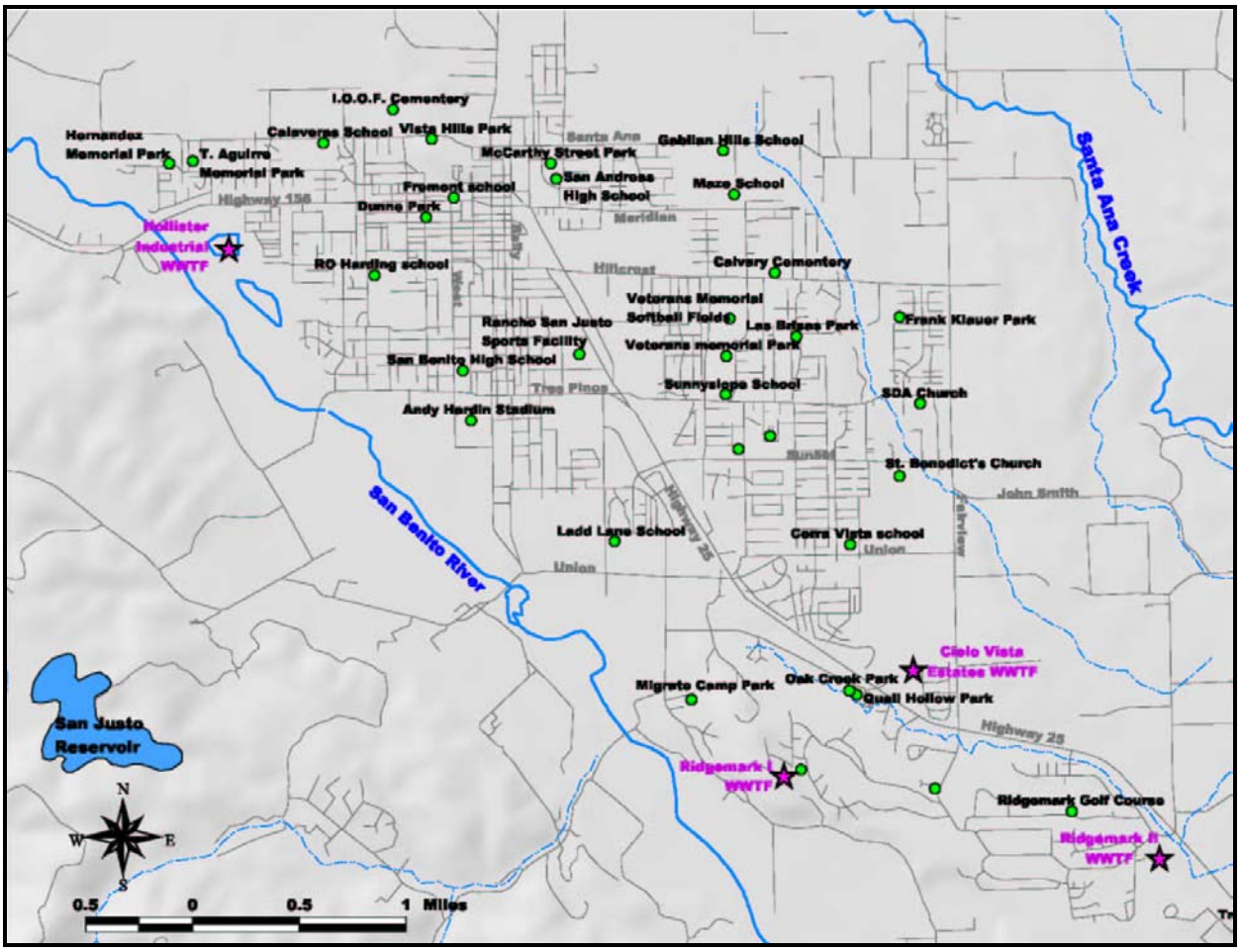
3.2.2 Potential Urban Demand

The primary opportunities for recycled water use in the northern San Benito County region are for landscape irrigation at golf courses, parks, school yards, and cemeteries. The Ridgemark Golf and County Club is the largest single urban water demand that could be converted to recycled water. In addition, there are also a few industrial operations that could potentially use recycled water. Recycled water at industrial facilities is typically used in cooling towers, boilers, manufacturing processes, and for facility wash down. Potential industrial customers in the region include Granite Rock Quarry, Leatherback industries, and several concrete companies.

Future development may also offer some opportunity for future increases in recycled water use. The San Juan Oaks golf course (GC) development is one potential opportunity to use recycled water for a future development. Future plans include a second 18-hole GC, a 9-hole executive course, 200 residential units, and a 200 room resort hotel.

Figures 3-1 and 3-2 show the location of potential urban customers that could use recycled water in the Hollister, Sunnyslope, and San Juan Bautista areas. There are several additional customers that are not shown in the figures including the San Juan Oaks GC and Granite Rock.

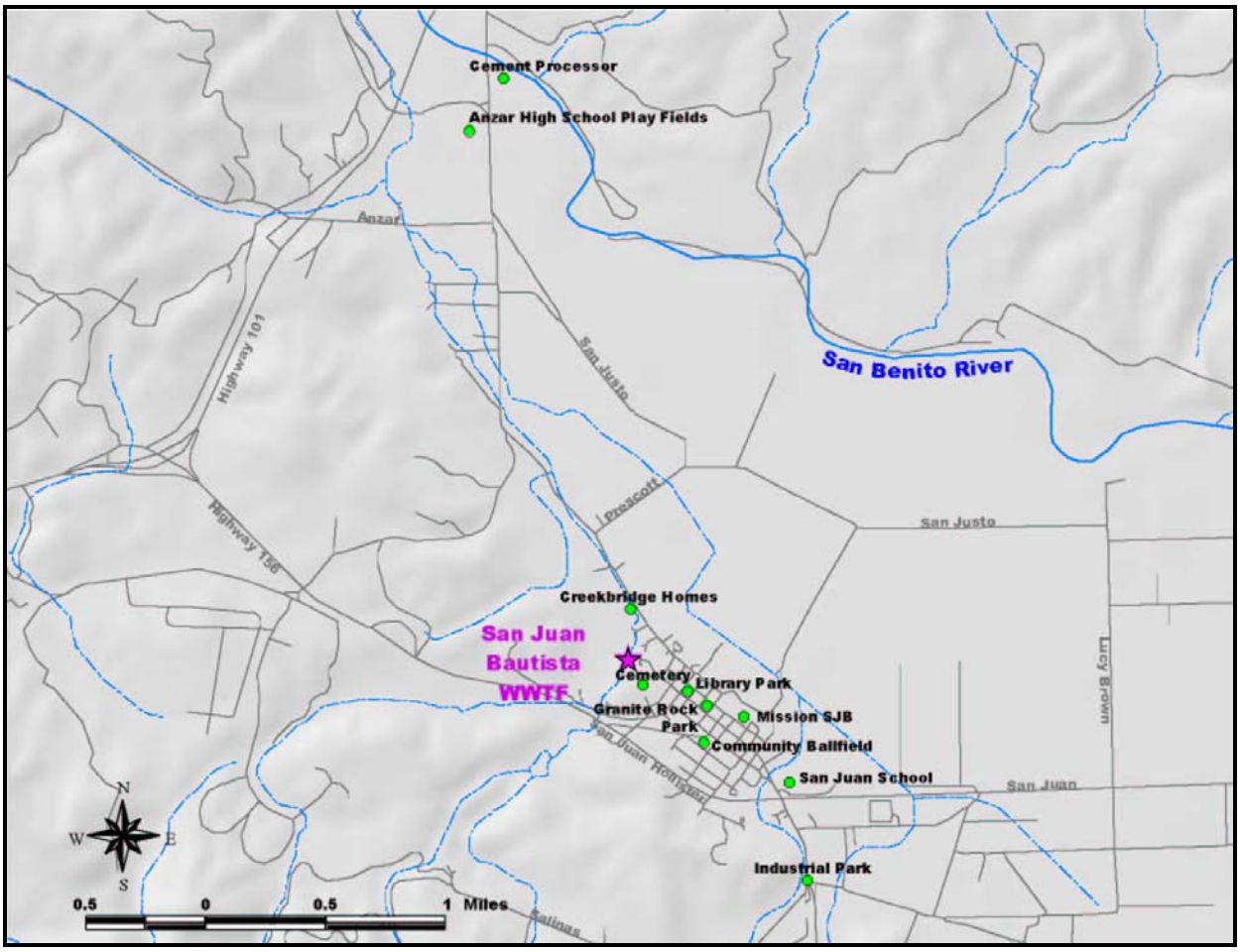
Figure 3-1: Location of Potential Urban Customers in the Hollister and Sunnyslope Areas



Notes:

1. Tres Pinos School, Stonegate, and Granite Rock Quarry are located to the southeast of the Ridgemark Golf Course and are not shown in the figure.

Figure 3-2: Location of Potential Urban Customers in the San Juan Bautista Areas



3.2.2.1 Annual Water Demand

Annual recycled water demand was estimated based on previous reports, water use records, and by applying the average annual gross irrigation water requirement to the irrigated acreage. The calculation of the gross irrigation water requirement provides an estimate of the amount of irrigation water that must be applied to meet plant evapotranspiration (ET) requirements including consideration for effective precipitation, leaching and irrigation system efficiency. Effective precipitation is the amount of rainfall that contributes to the ET requirement. Leaching is a percolation process whereby additional irrigation water is applied to move soluble salts from the root zone. The amount of water applied for leaching is determined based on plant salt tolerance and the need to maintain root zone salinity below the threshold level at which plant growth may be affected. Considering the salt tolerance of warm season turf grass and amount of average precipitation, it was assumed that adequate leaching would be accomplished by annual rainfall.

The irrigation application requirement also considers the efficiency of the irrigation system. Irrigation systems are not 100 percent efficient in applying water. System inefficiencies are related to method of irrigation, system design, water application uniformity, system maintenance, management and climate. Generally, a properly designed sprinkler irrigation system for turf/landscape irrigation with excellent management is capable of achieving an average irrigation efficiency of about 80 percent. The estimated gross irrigation water application requirement is summarized in Table 3-4.

Table 3-4: Summary of Estimated Irrigation Water Demand - Warm Season Turf Grass

Month	ETo (ai/ac)	Kc - Warm Season Turf	Eto * Kc	Net Irrig. Rqmt.[a] (inches)	Gross Irrig. Rqmt.[b] (inches)
January	1.40	0.55	0.8	0.0	0.0
February	1.84	0.54	1.0	0.0	0.0
March	3.41	0.76	2.6	1.5	1.9
April	4.64	0.72	3.3	3.3	4.1
May	5.94	0.79	4.7	4.7	5.9
June	6.69	0.68	4.5	4.5	5.6
July	7.03	0.71	5.0	5.0	6.3
August	6.47	0.71	4.6	4.6	5.8
September	4.98	0.62	3.1	3.1	3.9
October	3.59	0.54	1.9	1.9	2.4
November	1.87	0.58	1.1	0.6	0.8
December	1.46	0.55	0.8	0.0	0.0
Total	**49.3**		**33.4**	**29.2**	**36.7**

Notes:

2. The reference crop ET is an average value for CIMIS Weather Stations #126 and #143. The (Kc) is based on warm season grass and assumes full winter dormancy during which grass water use is essentially zero. Evapotranspiration from dormant warm season grass (winter months) is from soil evaporation.

Footnotes:

a. Net irrigation requirement represents the water necessary to satisfy crop ET.
b. Gross irrigation required represents the amount of water applied to account for leaching and irrigation efficiencies.

Table 3-5 summarizes the existing potential urban customers and associated irrigation acreage and annual demand based on the previous reports, water use records, and the above data. The consumptive use methodology was used to fill in data gaps when other water use documentation was not available. Table 3-6 summarizes the overall demand for landscape irrigation, industrial use, and the San Juan Oak G.C. future development.

Table 3-5: Potential Urban Customers and Average Annual Demand

Customer Name	Irrigated Acreage	Average Annual Demand (AFY)
City of Hollister and SSCWD Service Area		
Ridgemark Golf & Country Club	200[a]	599
Granite Rock Quarry	NA	544[b]
San Juan Oaks Golf Course	120	360
Leatherback Industries	NA	151
Chapin Concrete	NA	139
Marguerite Maze Middle School/ Sports Complex	7.4	32
Rancho San Justo Sports Facility & School	9.4	28
Veter. Mem. Softball Fields and Picnic Areas	16.7	24
RO Harding School	6.1	23
Sunnyslope School	2.0	19
Calaveras School/Park	7.6	19
Ladd Lane School	4.2	17
Cerra Vista School/Park	6.4	17
Andy Hardin Stadium	9.9	16
Sunnyslope Village Park/Frank Klauer Park	4.5	13
Calvary Cementery	3.8	11
Dunne Park	1.4	10
Vista Hills Park	2.5	8
Foxhill Estates - 6 users	ND	7.6
San Benito County Service Area #31 - Stonegate	ND	7
McCarthy Street Park and San Andreas High School	1.7	7
Streetscapes, Sound walls	2.2	6.7
St. Benedict's Church	ND	6.1
Gavilan Hills School	ND	5
Fremont School (City Offices)	1.7	5
Maranantha - 4 users	ND	4.8
San Andreas High School	1.4[c]	4.1[d]
St. Benedict's Church	1.2	3.6
Las Brias Park	1.0	3
Hernandez Memorial Park	0.8[c]	2.3[d]
I.O.O.F. Cementery	0.6	2
Tres Pinos School	ND	1.5
T. Aguirre Memorial Park	0.4[c]	1.1[d]
SDA Church	ND	1
San Benito High School	1.3	1
City of San Juan Bautista		
Cement Companies (Willis Construction and RMC Materials)	NA	35
Highway 156 Landscaping	10	10
Anzar High School Playfields	2	6
Creekbridge Homes Landscaping	2	6
Mission San Juan Bautista	2	6
San Juan School Playfield	2	6

Customer Name	Irrigated Acreage	Average Annual Demand (AFY)
Abbe Park	1	3
Library Park	0.5	1.5
Cemetery Landscaping	0.3	0.8
Verutti Park	0.3	0.8

Notes:
1. Water use data was based on water records, previous studies for San Juan Bautista and Sunnyslope, and data from Hydroscience unless otherwise noted.
2. NA – Not Applicable
3. ND – No Data

Footnotes:
a. Estimated based on assumed irrigation rate of 3 AF/acre and annual irrigation of 599 AF.
b. Granite Rock Quarry water demand is for aggregate mining operations. Operations have minimal consumptive use as most of the process water is returned to the groundwater basin.
c. Irrigated acreage estimated as 50% of park acreage.
d. Water use based on consumptive use methodology.

Table 3-6: Summary of Estimated Annual Urban Non-Potable Water Demand

Use Type	Irrigated Acreage	Average Annual Demand (AFY)	Average Annual Demand (MGD)
Landscape Irrigation[a]	350	1,300	1.2
Industrial	NA	870	0.8
San Juan Oaks GC Development[b]	UK	390	0.3
Total	**350**	**2,560**	**2.9**

Notes:
1. NA – Not Applicable
2. UK - Unknown

Footnotes:
a. Landscape irrigation includes schools, parks, golf course areas and some commercial areas. The estimated demand (360 AFY) for the existing San Juan Oaks GC is included in the 1,310 AFY.
b. San Juan Oaks GC is planning to construct a second 18-hole golf course a 9-hole executive course. Following the expansion, irrigation water use is expected to increase by 390 AFY (Meeting with Scott Fuller, August 2003).

The total annual potential water demand for landscape irrigation is estimated to be approximately 1,690 AFY (including the future development at the San Juan Oaks GC). Annual non-potable industrial water demand is estimated to be approximately 870 AFY. The total non-potable urban water demand is approximately 2,560 AFY. It should be noted that this estimate represents the non-potable water demand for the entire urban service area for the Northern San Benito County region and does not consider cost feasibility or water quality constraints. When facility and delivery options are developed and evaluated, the urban market service area will be defined.

3.2.2.2 Monthly Water Demand

Estimated monthly recycled water demand for landscape irrigation is based on the gross irrigation requirements summarized in Table 3-4. Potential industrial use was assumed to be constant throughout the year as no specific water use data has been collected to date. Table 3-7 summarizes the potential monthly urban water demand for landscape irrigation, industrial customers, and potential San Juan Oaks GC Development.

Table 3-7: Summary of Estimated Monthly Non-Potable Water Demand Urban Market Area

Month	Landscape Irrigation (AF)	Industrial (AF)	San Juan Oaks G.C. Development (AF)	Total (AF)
January	0	72	0	72
February	0	72	0	72
March	67	72	20	160
April	145	72	44	261
May	209	72	63	344
June	198	72	60	330
July	223	72	67	363
August	205	72	62	339
September	138	72	41	252
October	85	72	26	183
November	28	72	9	109
December	0	72	0	72
Total Demand[a]	**1,300**	**870**	**390**	**2,560**

Footnotes:
a. Total demand row was rounded to the nearest 10.

During the peak month (July), urban recycled water demand could be as high as 363 AF per month. This demand is comprised of both landscape irrigation and potential industrial uses. Landscape irrigation monthly demand peaks in July at 291 AF (3.1 mgd) including the future San Juan Oaks GC Development.

3.2.2.3 Peak Water Demand

Average daily water demand (net crop ET) during the peak water demand month (July) for warm season turf grass is about 0.16 acre-inches per acre (3.0 gpm per acre based on a 24 hour delivery). Average daily water demand does not account for water needs under abnormally hot, dry and/or windy weather conditions that result in higher than average crop ET. The peak day demand is the basis for estimating the conveyance system design flow needed to satisfy water demand under those peak ET conditions and is estimated by applying a peaking factor to the average day of the peak month (UNFAO, 1975). Based on the UNFAO methodology, the peaking factor (peak day of the peak month to the average day peak month) is estimated at 1.1. Assuming an irrigation efficiency of 80 percent and daily 12-hour irrigation operation (assumes recycled water delivery is scheduled resulting in uniform water use), the estimated design flow for turf grass and other urban landscape uses is about 8.3 gpm per acre (peak day of the peak month demand). The length of allowable daily irrigation system operation has a significant affect on the design flow requirement. The 12-hour daily system operation assumes that summertime use of parks, golf courses, and schools will limit the time available for irrigation. It should be noted that the peak water demand identified above is based on the specific operational assumptions. Peak flows depend on customer needs and operational practicality. If the distribution system is operated like a typical water distribution system, the peak water use is expected to be higher.

Industrial peak water demand is a function of the type of industry, and seasonal and daily operations. Based on previous experience, peaking factors for industrial water use range from 1.2 to 2.0 and are highly dependent on local industry and operation. Specific information on industrial peak water use was not available, therefore additional effort is needed to fully understand and evaluate peak industrial water use. Additional tasks could include flow monitoring or contacting industrial users.

3.2.3 Implementation of Urban Recycled Water Use

Implementation of an urban recycled water project is likely a viable market alternative for the northern San Benito County region. However, more detailed evaluations are needed to refine quality and quantity requirements. Generally, the urban customers identified are spread throughout the developed urban areas and would require extensive distribution systems to serve all customers. In addition, retrofit and dual plumbing needs often result in significant costs. The cost feasibility to serve this urban only market has not been assessed at this time. However, unit distribution costs for urban only recycled water use is generally more costly than agricultural alternatives. Select urban customers with a significant demand and within proximity to potential recycled water sources are more viable opportunities to serve urban customers. Service to urban customers that are near target agricultural customers may also be a viable option.

An urban recycled water project is expected to require significant public outreach efforts to garner support for the project. Public perception, water quality issues, regulatory issues, reliability issues, and stakeholder input could be addressed as part of the outreach efforts.

3.3 Agricultural Market

This section summarizes the methodology and potential demands for recycled water related to agricultural irrigation. Agricultural use of recycled water is a significant potential use of recycled water given the variety of agricultural activities within the SBCWD boundary. It should be noted that this evaluation represents only a preliminary analysis of the agricultural market. As the project continues to move forward, a more detailed analysis of actual cropping patterns, irrigated acreage, and other conditions will need to be performed and verified through fieldwork. Project outreach will also be key in identifying customer concerns and issues, and to garner project support.

3.3.1 Agricultural Methodology

The production of vegetable row crops is the primary agricultural land use within the SBCWD boundary. Deciduous fruit and nut trees also are major crops. Existing agricultural water use in northern SBC is approximately 54,100 AFY, which significantly exceeds the potential recycled water supply in the region. A preliminary screening evaluation was completed to identify target agricultural areas based on proximity to potential recycled water sources and grower desire for CVP water service. In addition, the irrigated acreage and potential demand of the existing CVP service area in the San Juan Valley were evaluated.

Three potential agricultural market areas were identified and typical cropping patterns for these regions are presented in Attachment A. The areas are:

- San Juan Valley (SJV) CVP Service Area: These lands are served by the CVP water delivery facilities and are largely used for vegetable row crop production, which encompasses nearly 90 percent of the area. Less than 10 percent of the area is used for the production of deciduous tree crops. Groundwater is the primary water source and CVP water deliveries supplement that supply. The existing CVP distribution system in the San Juan Valley could be one opportunity to distribute recycled water.
    - The Northwest Area (Subset of SJV CVP Service Area): This area is within close proximity to potential recycled water supplies from San Juan Bautista, Natural Selection, and Pride of San Juan. This area is part of the existing CVP service area that currently receives San Felipe water to augment groundwater supply. The existing CVP system could be used to deliver recycled water to growers.
- Freitas Road Area: This area includes the Olympia and Duncan Road area and vegetable row crops are produced on about 60 percent of the land. Deciduous tree crops are grown on about 25 percent of the agricultural land. Groundwater is pumped to meet all irrigation demand as the area

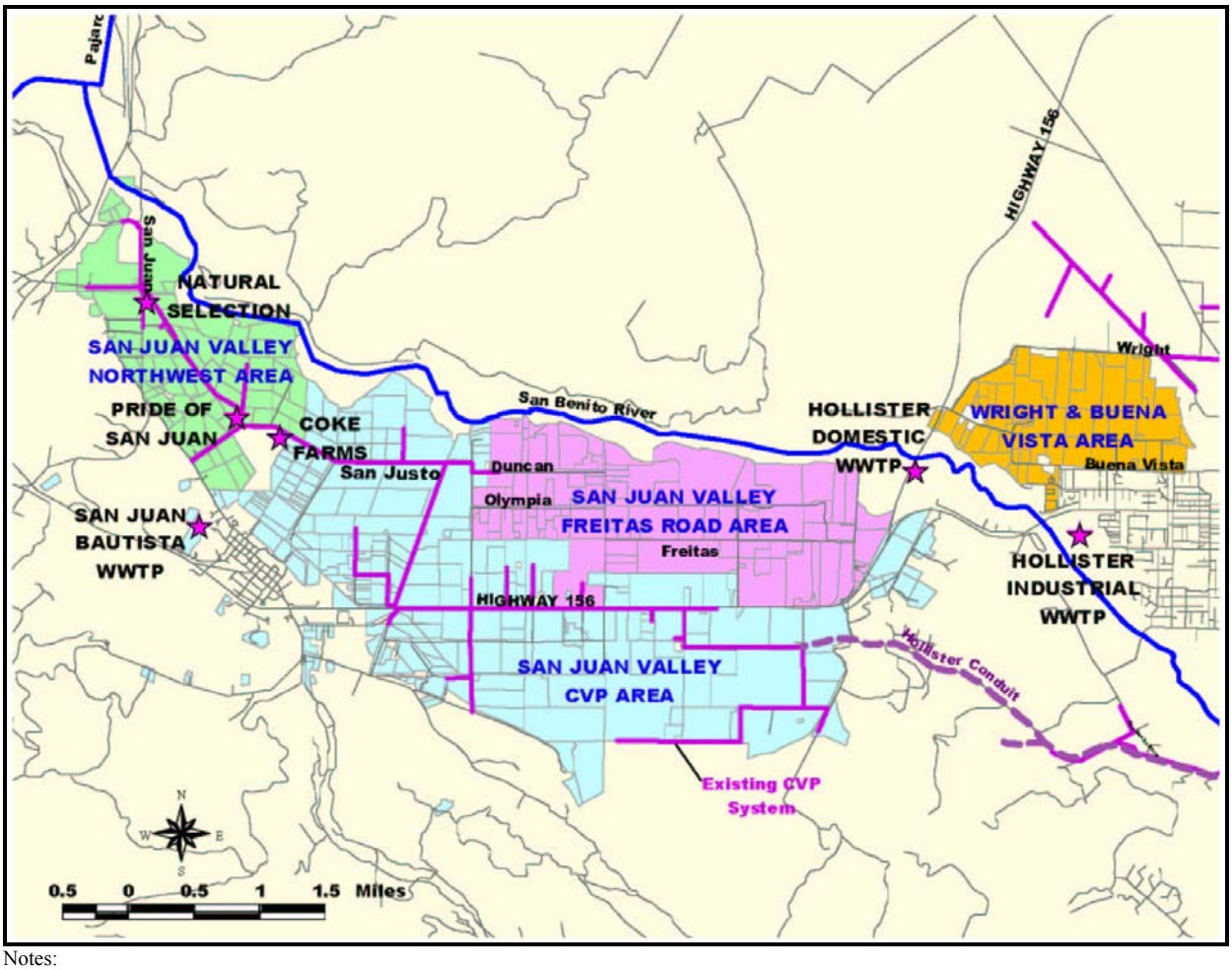
does not receive CVP water. Growers in area have expressed interest in CVP water. Recycled water may also be an option to help meet the needs of the area.

- Wright and Buena Vista Road Area: This area is comprised of about 50 percent vegetable row crops and just over 40 percent of deciduous tree crops. Groundwater is pumped to meet all irrigation demand as the area does not receive CVP water. Growers in area have expressed interest in CVP water. Recycled water may also be an option to help meet the needs of the area.

In addition, an additional agricultural irrigation project in the Bolsa groundwater basin was considered. This project was conceived to be primarily rangeland irrigation; however, the project location is not in close proximity to any potential source of recycled water and will therefore result in a high cost for distribution. For this reason, the project is not considered in any subsequent analysis.

The use of recycled water in these potential service areas may involve the use of existing water conveyance facilities and/or the construction of new facilities. Blending to manage water quality and water costs would be important issues with water users. Other important issues would include available system capacity for conveying recycled water, water delivery flow and volume, system management and safety.

Figure 3-3: Potential Agricultural Market Areas



Notes:
1. The San Juan Valley CVP area shaded in blue also includes the area shaded in green (SJV – Northwest Area).

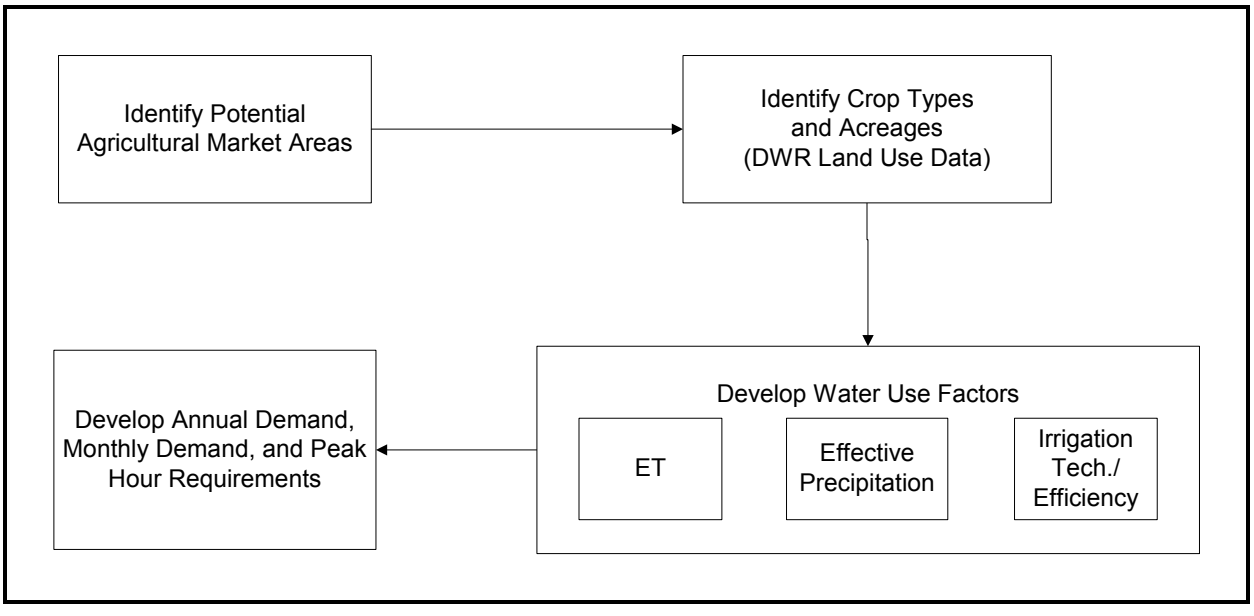
The prevailing cropping pattern and estimated crop acreage for these three potential recycled water service areas was developed using GIS mapping and California DWR land use data. The DWR collects data and evaluates land use in California under its Land and Water Program. Estimates of crop acreage are prepared based on periodic aerial photography augmented by ground truthing. The most recent DWR data for San Benito County is from 1997 and those data form the basis for this analysis. The prevailing cropping pattern for each potential market area is summarized in Attachment A.

Crop water demand is usually estimated by applying crop coefficients to reference evapotranspiration (ET), which results in an estimate of net crop ET. Net crop ET is the amount of water needed by the crop to satisfy water demand. The gross amount of irrigation water applied (Irrigation Water Application Requirement - IWAR) reflects adjustments made for effective precipitation (rainfall that satisfies some portion of ET), a leaching fraction to manage salinity, and additional irrigation water applied to account for on-farm irrigation system inefficiencies. Often, distribution system losses are included as a component of water demand to account for water losses incurred as a result of water delivery inefficiencies. These losses generally include canal seepage and evaporation or pipeline loss, and have not been accounted for in this analysis given that those losses are assumed to be negligible. As with the analysis of potential urban demand, it was assumed that adequate leaching would be provided for by annual precipitation. The results of this demand analysis provide an estimate of overall annual water demand weighted to account for differences in water demand between crop types.

In addition to annual crop water demand, it is necessary to estimate the flow required to satisfy crop water requirements that occur under peak demand conditions. Peak crop water demand occurs under climatic conditions that result in high crop ET, usually defined by abnormally hot, dry, windy conditions, which normally occur during mid-summer in the project area. Peaking factors, found in published data (UNFAO, 1975), are applied to the average ET of the peak ET month to develop the peak flow required. This value also includes adjustments made for irrigation system inefficiencies. The resulting value is expressed as GPM per acre and is used for designing the capacity of the water conveyance system.

The analysis of annual water demand and design flow for the three potential market areas is described later in Section 3.3.2. The analysis is based on published data that reflect actual conditions in the project area. Figure 3-4 shows a flow diagram with the major steps for this agricultural market methodology.

Figure 3-4: Agricultural Methodology Flow Diagram



3.3.2 Potential Agricultural Demand

The analysis of potential agricultural demand for recycled water is based on existing data from:

- Reference crop ET from CIMIS Weather Stations #126 and #143 located in the San Juan Valley and Hollister area.
- Estimated Monthly ET and crop coefficients for CIMIS Climatic Zone 10, normal year with sprinkler irrigation, Irrigation and Training Research Center (ITRC), Cal Poly SLO.
- "Vegetative Water Use in California, 1974", California DWR, Bulletin 113-3, April 1975.

It should be recognized that the potential agricultural market areas identified have water demand that significantly exceeds potential recycled water supply. In reality, the potential recycled water project would only provide a partial water supply. This approach was used as it is currently unclear where recycled water production facilities would be located. Therefore, the market areas in Figure 3-3 were carried forward and demands were developed for the entire area. The following sections summarize annual, monthly, and peak water demand for each of the three agricultural market areas.

3.3.2.1 Annual Water Demand

The ITRC data was developed for CIMIS climatic zone 10, which encompasses a much larger geographic region. These data were modified based on the reference crop ET from the San Juan Valley and Hollister CIMIS weather stations. The cropping pattern was segmented into seventeen crop categories and crop coefficients were developed for each crop category. The analysis resulted in development of monthly and annual crop evapotranspiration (ETc) values for each crop category.

The ETc values were reduced as appropriate to reflect the contribution from effective precipitation. Effective precipitation is that portion of rainfall that satisfies some amount of crop ET. The amount of effective precipitation varies based on crop type, stage of growth and the amount and intensity of precipitation. Adjustments were not made to reflect an additional amount of water that would be required to provide an adequate leaching fraction needed to manage salinity within the plant root zone, since it was assumed that annual precipitation would provide for adequate leaching. The sum of crop ET less effective precipitation yields an estimate of the net amount of irrigation water that must be applied to meet crop demand. This value is further adjusted to reflect on-farm irrigation system inefficiencies, and an average irrigation efficiency of 80 percent was used.

The above approach was used to develop an estimate of net and gross irrigation water application requirements for the three potential market areas. The estimated annual water demand for each potential market area is summarized in Table 3-8. The estimated annual irrigation water demand ranges from about 1.9 to 2.6 acre-feet per acre. The analysis of irrigation water demand is included in Attachment A.

Table 3-8: Summary of Estimated Annual Irrigation Water Demand

Market Area	Irrigated Acreage	Annual Gross Water Appl. Requirement (AF)	Unit Gross Water Appl. Requirement (feet)
SJV CVP Service Area[a]	5,960	11,720	2.0
- Northwest Area (Subset)	1,120	2,180	1.9
Freitas Road Area	1,890	4,600	2.4
Wright & Buena Vista Rd. Area	890	2,290	2.6

Footnotes:
a. Includes SJV – Northwest Area.

3.3.2.2 Monthly Water Demand

Monthly water demand was estimated during the analysis of annual water demand presented above. Monthly irrigation water demand is weighted based on the cropping pattern in each potential market area. Estimated monthly irrigation water demand is summarized in Table 3-9.

Table 3-9: Summary of Estimated Monthly Irrigation Water Demand by Market Area

Month	SJV CVP Service Area[a]		Northwest Area		Freitas Road Area		Wright & Buena Vista Area	
	Net Irrig. Appl.[b] (AF)	Gross Irrig. Appl.[c] (AF)	Net Irrig. Appl.[b] (AF)	Gross Irrig. Appl.[c] (AF)	Net Irrig. Appl.[b] (AF)	Gross Irrig. Appl.[c] (AF)	Net Irrig. Appl.[b] (AF)	Gross Irrig. Appl.[c] (AF)
January	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0
March	255	319	44.8	56	109	136	36	45
April	795	994	129.6	162	315	394	110	137
May	1,475	1,843	288	360	592	740	271	339
June	1,425	1,781	292.8	366	640	799	331	414
July	1,489	1,861	314.4	393	692	865	354	442
August	1,102	1,378	280.8	351	555	694	322	403
September	852	1,065	218.4	273	387	484	233	291
October	514	642	122.4	153	238	298	133	166
November	263	329	55.2	69	97	121	45	56
December	0	0	0	0	0	0	0	0
Total	**8,169**	**10,212**	**1,746**	**2,183**	**3,625**	**4,531**	**1,834**	**2,292**

Footnotes:

a. Includes SJV – Northwest Area.
b. Net irrigation requirement represents the water necessary to satisfy crop ET.
c. Gross irrigation required represents the amount of water applied to account for leaching and irrigation efficiencies.

3.3.2.3 Peak Water Demand

Average climatic conditions provide the basis for estimating monthly and annual crop water demand. However, average daily water demand does not account for water needs under abnormally hot, dry and/or windy weather conditions that result in higher than average crop ET. The water conveyance system must be sized to consider the need to satisfy these short term peak demands. The peak day demand is used as the basis for estimating the conveyance system design flow needed to satisfy water demand under those peak ET conditions and is estimated by applying a peaking factor to the average day of the peak month (UNFAO, 1975). The peaking factor (peak day of the peak month to the average day peak month) for the project area is estimated at 1.1. The resulting value is divided by the irrigation efficiency (assumed at 80 percent), and anticipated daily operational duration (assumed uniform delivery for 24-hours). The design flow, based on the analysis of peak ET, is usually expressed in gpm per acre.

Normally, the data presented in Table 3-9 would be used for purposes of estimating conveyance system peak design flow requirements. However, the common practice of double and triple cropping vegetable rows crops in the proposed service areas skews the analysis, and using those values results in an artificially low estimate. Based on experience in similar areas, the peak water demand should be in the range of about 5 to 7 gpm per acre. A more accurate estimate is obtained by using reference crop ET (7.025 acre-inches per acre during July (4.7 gpm per acre)) and assuming a crop coefficient of 1.0, which results in an estimated peak water demand of 6 gpm per acre (peak day of the peak month demand) assuming a 24-hour uniform delivery.

The analysis above does not account for the availability of groundwater to assist in meeting peak day demands. Peak water demands for an agricultural system can be manage with water delivery schedules. Alternatively, customers could be required to use groundwater supplies meet peak water demands. This would minimize the size of the distribution system.

3.3.3 Implementation for Agricultural Recycled Water Use

The agricultural market is considered the primary opportunity to use recycled water. The location of the Hollister and San Juan Bautista WWTP's is within relatively close proximity to irrigated agricultural land. A recycled water project for agricultural irrigation would be contingent upon working with local growers to address project concerns and issues.

In preliminary discussions with local growers, major concerns included water quality, food safety, market perception, and costs. The potential for pathogens and salinity were the primary water quality concerns due to potential health risks and impacts to crops. Salinity is a primary concern associated with recycled water use and various salinity goals were identified in discussions with growers. Generally, growers identified salinity goals for irrigation water in the range of 500 to 800 mg/L TDS. In October 2004, the SBCWD, San Benito County and the City of Hollister entered into a Memorandum of Understanding for the *Hollister Urban Area Water and Wastewater Master Plan* that sets the salinity range for agricultural delivered water at 500 – 700 mg/L TDS.

From a cost perspective, it was generally noted that cost for water should not increase. Organic certification was another grower concern as there are a number of organic growers in the potential service areas. Based on the findings from the preliminary discussions, future outreach efforts will be key for gaining support for the project.

3.4 Environmental Uses

Environmental use of recycled water is generally driven by the anticipated environmental benefit as opposed to actual water demand. Potential opportunities for environmental uses include stream flow augmentation, lake recharge, wildlife habitat restoration, wetland enhancement and other related environmental purposes. Environmental uses of recycled water would need to be evaluated to assess the potential impacts to local groundwater supplies, agricultural lands, and other environmental habitats.

Recycled water could also be used to develop constructed wetlands to provide habitat for endangered species and other wildlife. Constructing/developing wetlands in the area could require conversion of agricultural land or modification to other land uses.

Environmental opportunities were investigated through telephone correspondence with Mandy Rose of the Sierra Club (Loma Prieta Chapter) and Rob Mendeola of the SBC Planning Department. Based on the correspondence, there are no specific environmental projects that have been envisioned for the near term. However, environmental opportunities should be reevaluated in the future as there may be potential for environmental projects in the long term.

Ms. Rose mentioned that there are some thoughts regarding riparian habitat restoration in the San Benito River. However restoration efforts are currently focused at limiting or eliminating all-terrain vehicles in the river bed. Ms. Rose is supportive of recycled water as she envisions wastewater percolation reduction along with reuse as a beneficial initial step to salt management.

Ms. Rose also noted that the Pajaro River Watershed Group is working with the RWQCB on TMDL's for the Pajaro River. A number of flood control issues and restoration projects have been discussed by several Pajaro River interest groups, however the groups do not agree on a recommend course of action.

3.5 Groundwater Recharge

Using municipal recycled water as a source to recharge a groundwater basin used for municipal and industrial water supply purposes is an approved practice in California. Water Factory 21 in Orange County, and the Montebello Forebay project operated by the Los Angeles County Sanitation District have been in operation since the late 1970's, recharging over 50,000 acre-feet per year to the local groundwater basins. However, advanced treatment technologies (reverse osmosis (RO), UV disinfection, etc.) are necessary to remove pathogens, organics, trace elements, and other impurities prior to recharge. These technologies are expensive to construct and operate, and typically reduce the project yield by as much as 25 percent (due to residuals and brine byproduct). Brine byproduct disposal would be an additional challenge for a groundwater recharge project. It is unlikely that the brine byproduct would be an allowable discharge to any inland surface water. Evaporation, brine export, or some other disposal process would need to be implemented in conjunction with the RO facilities.

Groundwater recharge projects are regulated by the RWQCB and the California Department of Health Services (DHS). Draft regulations for Groundwater Recharge Reuse were published by DHS in July 2003 and represent the latest thinking on recharge regulations. The regulations include requirements to control pathogenic microorganisms, nitrogen, regulated chemicals and physical characteristics, and non-regulated chemicals. There are also monitoring, reporting, and operational requirements that need to be fulfilled. Regulations are only applicable to projects designated as groundwater recharge reuse projects the RWQCB.

Groundwater recharge using recycled water can be accomplished by percolation or injection. Recharge could be practiced year round or seasonally, and could be implemented with other potential recycled water uses. With recharge, recycled water would commingle with groundwater and be transported via the aquifer system to existing wells. Percolation basins could be located in areas with high recharge potential. Injection wells could also be constructed, but would need to be spaced to reduce groundwater mounding and would require a distribution header system.

Currently, percolation ponds are the major wastewater disposal practice in SBC. Wastewater percolation results in recharge of the groundwater basin and results in reuse of water through groundwater pumping. This disposal practice is not considered as a groundwater recharge project and is therefore not required to meet the draft regulations. Given the San Juan Basin setting, a more effective mechanism to achieve water quality goals would be to apply RO treatment to poor quality groundwater and incorporate that new source into the domestic water supply.

3.6 Water Quality

The use of recycled water for irrigation raises a number of water quality issues related to public health and water chemistry, which affects suitability for irrigation and other potential uses. The public health aspects of recycled water irrigation are regulated by Title 22 of the California code. Given that the cropping pattern in the three potential market areas includes agricultural crops that may be consumed raw, the potential for direct public contact in parks and schools, potential industrial uses and considering the provisions of Title 22, disinfected tertiary recycled water would be required for irrigation and other uses. This would generally provide for unrestricted water use from a public health perspective. This same level of treatment, however, would not be required for continuation of the existing disposal operations.

Recycled water often contains elevated levels of salinity and other constituents that have the potential to affect the production and quality of agricultural crops, and turf and landscape plants. These potential water quality impacts are a concern of potential recycled water customers. While affects to agricultural crops typically result in some economic impact, landscape plantings usually suffer from reduced plant

growth and loss of aesthetic value. The suitability of water for irrigation is assessed by evaluating the potential impact of selected water quality constituents. This assessment is based on published data, crop types and tolerance levels, climatic conditions, prevailing soil characteristics, and local experience. Generally, the tolerance of the most sensitive crop to the water quality constituents is the basis for assessing the suitability of the recycled water for irrigation. It is important to engage service area water users during the planning process to obtain additional guidance on water quality issues. Further, water quality will be an important consideration for negotiating agreements for recycled water deliveries.

3.6.1 Water Quality Data

An evaluation of irrigation water suitability requires comprehensive recycled water quality data. The Cities of Hollister and San Juan Bautista, and Sunnyslope County Water District have provided some water quality data from the various WWTP's in SBC. These data were summarized in the Project Setting TM (Section 2) and are presented in Table 3-10.

Table 3-10: Wastewater Treatment Plant Effluent Characteristics

Wastewater parameter	Hollister Industrial WWTP[a]	Hollister Domestic WWTP[b]	San Juan Bautista WWTP[c]	Ridgemark I WWTP[d]	Ridgemark II WWTP[e]
Chloride (mg/L)	326	285	318	586	730
Sodium (mg/L)	276	283	233	N. D.	N. D.
Hardness (mg/L)	N. D.	N. D.	463	N. D.	N. D.
Sulfate (mg/L)	203[g]	213	158	N. D.	N. D.
TDS (mg/L)	1,214	1,130	1,142	1,760	1,955
Ammonia	< 0.8[g]	28.7	N.D.	N. D.	N. D.
Nitrate (mg/L)	25.2[g]	9.3	11.2	0.2	1.3
Nitrite (mg/L)	0.5[g]	0.1	< 0.7	< 0.1	0.13
Kjeldahl N (mg/L)	4.8[f]	31.4	N.D.	N. D.	N. D.
Total Organic Nitrogen (mg/L)	5.4	2.7	N. D.	N. D.	N. D.
Ammonia - N (mg/L-N)	N.D.	N.D.	0.4	N. D.	N. D.
Soluble BOD (mg/L)	N. D.	N. D.	N. D.	16	6.3

Notes:

a. The data listed are recorded in the year 2003 (January to May).
b. The data listed are recorded in the year 2003 (January to June).
c. The data listed are for the year 2002 (January to December).
d. The data listed in the table are recorded in March 2003 and May 2003 from 5 ponds.
e. The data listed in the table are recorded in March 2003 and May 2003 from 3 ponds.
f. Based on one data point in January 2003.
g. Based on two data points in January 2003.

Data to fully assess the suitability of these recycled water sources for irrigation are generally limited and more comprehensive information is required. However, these data provide insight into irrigation suitability issues like salinity that may be a limitation for the irrigation of salt sensitive crops/plants. Further, other water quality constituents of concern, such as chloride and sodium, are at appreciable concentrations that create the potential for water quality induced problems for sensitive agricultural crops and landscape plants. Although data are not available to fully assess the potential impact of sodium to soil resource conditions, it appears that soil characteristics could be adversely impacted. Blending with better quality surface water or other advance treatment options may be an important consideration in dealing with adverse water quality characteristics. Additional water quality data are needed to fully assess the suitability of the recycled water for irrigation and to develop management strategies.

The evaluation of water quality summarized later will focus on identifying crop/plant tolerance levels to the various water quality constituents, which will be helpful in future water quality evaluations as more comprehensive water quality data becomes available.

3.6.2 General Irrigation Water Quality Guidelines

The suitability of water for irrigation is closely related to the type and concentration of chemical constituents present. Concerns include salinity, sodium hazard, and potential toxicity to plant foliage and roots from specific constituents. The tolerance of crops to various water quality constituents differs by crop/plant type. Furthermore, different varieties of the same crop/plant can exhibit markedly different growth response to water of similar quality. Crop tolerance to constituents in the irrigation water, soil conditions, method of irrigation, prevailing climate and management are important factors in assessing the suitability of a particular water for irrigation.

Researchers have studied crop/plant tolerance to salinity and other constituents, and have published water quality guidelines for many agricultural crops and landscape plants. The University of California has compiled this data and developed general guidelines for assessing the suitability of water for irrigation. These guidelines, summarized in Attachment B – Table B-7, are general and flexible and are often modified based on local experience and special conditions of crop, soil, and method of irrigation.

TDS is one of the primary water quality parameters of concern as TDS may impact soil conditions and the crop growth and yield. Based on interviews with potential agricultural customers, it was noted that the preferred TDS range for irrigation water is 500 mg/l to 800 mg/l. According to the UC guidelines, TDS levels below 480 would minimize the potential impacts to sensitive crops. Water with increased TDS between 480 mg/l and 1,920 mg/l may cause increasing problems.

3.6.3 General Water Quality Conclusions

Based on the limited recycled water quality data summarized in Table 3-10, the elevated level of salinity and concentration of constituents like chloride and sodium are likely to cause damage to sensitive crop/plants. The implementation of a water quality monitoring program is needed to collect additional data to fully assess water quality and to develop management strategies. More detailed water quality information is contained in the Attachment B.

3.7 Market Assessment Findings and Conclusions

The agricultural and urban markets are the primary opportunities for recycled water use in San Benito County. Generally, agricultural reuse is more cost effective as urban customers require larger distribution system to serve similar demand. However, urban customers who are located near recycled water supplies may be cost effective option. Although there are some promising potential urban customers, agricultural irrigation is thought to be the target market opportunity. The service areas in the San Juan Valley and the Wright and Buena Vista service areas are the primary agricultural options for recycled water use in San Benito County. Potential urban customers in SBC consist of the parks, golf courses, school yards, and several industries. Landscape irrigation is the primary use of recycled water in the urban setting.

The San Juan Oaks golf course is an opportunity for future urban use as golf course, housing, and a resort hotel are planned for the near future. A dual plumbed system could be implemented to serve recycled water to the golf course and the non potable residential uses.

Water quality is a major issue for both agricultural and urban use. Existing salinity, sodium, and chloride concentrations are primary concerns for recycled water use. This could be enhanced in the future with the implementation of water treatment plants to provide CVP water for M&I use. Treatment of groundwater supply would also help to reduce salt concentrations allowing recycled water to be used directly or with some blending.

Environmental type projects could be feasible in the future as potential projects are developed. Restoration of habitat in the San Benito River corridor could be one opportunity in the future. To date there are no specific projects that have been identified.

Generally, groundwater recharge projects require RO treatment and brine disposal which makes other uses of recycled water more cost effective. In the SBC setting, groundwater recharge projects are not practical as the primary disposal option in SBC is percolation, which results in recharge of the groundwater basin. Subsequent pumping of groundwater results in reuse of recycled water.

Detailed market assurance assessments are needed to define water customer quality and quantity objectives. Operational requirements, details on pressure, connection location, and other needs will be identified and defined in the future. Distribution options will be identified and assessed in the alternative development phase of the project. In addition public outreach will be needed to garner public support for a recycled water project.

Section 4

Alternative Building Blocks

4 Alternative Building Blocks

The purpose of this section is to identify and develop potential building block elements for a regional recycled water project. The building block elements are subsequently used to develop the conceptual alternatives in Section 5. This approach was used recognizing the significant number of variable elements that could be combined to form alternatives. This section simplifies the discussion of the conceptual alternatives and supplements Section 5. Potential building blocks of the regional recycled water alternatives are:

- Wastewater Conveyance from WWTPs to a Regional Recycled Water Facility
- Title 22 Treatment
- Salinity Control
- Distribution Options
- Supply Maximization

The building blocks were developed with a focus on using wastewater flows from Hollister, Ridgemark, San Juan Bautista, and the vegetable processors (Natural Selection and Pride of San Juan). Use of other potential recycled water supplies from Tres Pinos and small communities like Cielo Vista were considered but after initial screening were found to be impractical as the existing and future flows are minimal (less than 50,000 gpd). Table 4-1 shows the existing and future (2022) wastewater flows considered in the development of recycled water alternatives.

Table 4-1: Northern San Benito County Existing and Estimated Future Flows

Treatment Facility	Existing Average Flow (mgd)	Existing Treatment Capacity (mgd)	2022 Wastewater Flow (mgd)
Hollister Domestic	2.5	2.7	3.65[a]
Hollister Industrial	3.1	6.1	4.52[a]
Ridgemark I	0.19	0.17	0.23[b]
Ridgemark II	0.10	0.24	0.11[b]
San Juan Bautista	0.20	0.27	0.24[b]
Natural Selection[c]	0.07	Unknown	0.35
Pride of San Juan[c]	0.02	Unknown	0.15

Footnotes:

a. The flows have been calculated from the population increase using a factor of 46 % increase.
b. The flows have been calculated from the population increase using a factor of 22 % increase.
c. Based on telephone correspondence with Glen Holden (Bracewell Engineering), October 2003.

Construction unit cost estimates, based on last quarter 2003 price levels, were developed and are the basis for estimated costs. For treatment options, unit costs were doubled for the construction of facilities with a capacity smaller than 0.5 mgd to capture the economy of scale that may accompany larger facilities. Conveyance options and distribution options are developed in this section to minimize the descriptions in Section 5. The estimates were developed for guidance in project evaluation and implementation and are based on information available at this time. The cost estimates include a construction contingency of 30% and a 25% contingency for engineering, legal, administration, environmental, and permitting. Final costs will depend on actual labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, and other variable factors.

Annual operation and maintenance (O&M) costs were based on the following factors:

- Pipeline O & M – 0.5% of estimated construction cost
- Pump Station O&M – 2.5% of estimated construction cost, plus power costs

- Percolation Ponds, Injection & Extraction Wells O&M – 2% of estimated construction cost, plus power costs
- Dams and Reservoirs O&M – 0.15% of estimated construction cost
- Reverse Osmosis Treatment O&M – 5% of estimated construction cost, plus power costs
- Power Cost – $0.15 per kilowatt-hour

Annualized capital costs were developed using an interest rate of 5% and a 30-year recovery period.

4.1 Wastewater Conveyance Options

Conveyance of wastewater is an opportunity to combine wastewater flows from several WWTPs allowing for implementation of one recycled water facility that treats the combined flow. Raw or treated wastewater could be conveyed to a centralized point for reclamation. Conveyance options include pumping and pipeline infrastructure from a WWTP to the recycled water facility. For this evaluation it was assumed that a regional recycled water facility would be located at the City of Hollister Domestic WWTP. Currently, the Hollister Domestic WWTP has highest annual wastewater flow in SBC and is located in close proximity to the primary agricultural opportunities.

Table 4-2 lists preliminary cost estimation assumptions for conveyance and distribution infrastructure.

Table 4-2: Conveyance and Distribution Unit Cost Assumptions

Element	Unit	Unit Cost
Capital Cost		
Pipeline (adjacent to roadways)	Per inch per linear foot	$5
Pipeline (in roadways)	Per inch per linear foot	$10
Bore and Jack Crossing	Per inch per linear foot	$20
Microtunneling	Per inch per linear foot	$25
Pump Stations	Per hp	$2,000
Right of Way	Per acre	$8,500
Appurtenances	%	10
Reservoirs	Per gallon	$1
Reservoir Land Acquisition	Per acre (estimation assuming a water level of 15 feet)	$30,000
Annual O&M Costs		
Pipeline	%	0.5
Pump Stations	%	2.5
Reservoir	%	0.15
Power Costs (pumping)	Per kWh	$0.15

Wastewater conveyance from the Ridgemark WWTPs and/or the Hollister Industrial WWTP to the Hollister Domestic WWTP are the primary opportunities to combine wastewater flows. Conveyance from San Juan Bautista was not considered as the San Juan Bautista WWTP currently produces Title 22 Disinfected Tertiary Recycled Water. Conveyance from small districts or communities like the TPCWD or the Cielo Vista Estates was not considered to be practical.

Figure 4-1 shows the two potential conveyance options from the Ridgemark WWTPs to the Hollister Domestic WWTP that were evaluated. For this evaluation, it is assumed that the entire wastewater flow from Ridgemark would be conveyed to the Hollister Domestic WWTP with the option to convey wastewater from the Hollister Industrial WWTP to Hollister Domestic as well. Generally, Option 1 (35,700 ft) was developed assuming the conveyance pipeline would follow existing roads. This criterion resulted in an alignment that was relatively indirect and lengthy. Option 2 (27,000 ft) was developed

assuming a more direct alignment that follows the San Benito River. Option 2 results in a shorter pipeline length but may have more significant environmental impacts as it is assumed to follow the San Benito River.

Figure 4-1: Conveyance Options for Regionalized Recycled Water Project

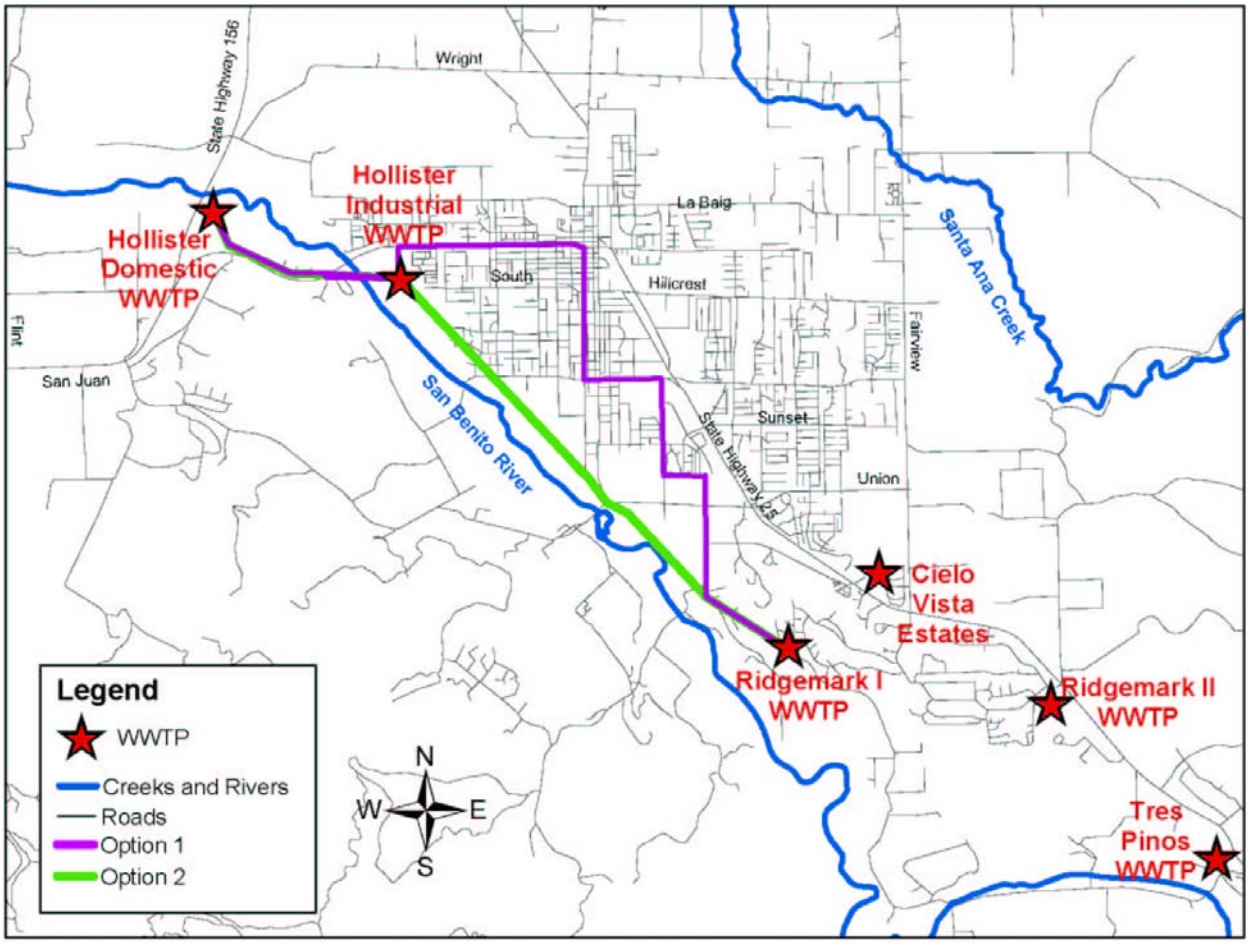


Table 4-3 summarizes preliminary design criteria used to estimate cost for the conveyance option from Ridgemark to the Hollister Domestic WWTP. The diameter of the conveyance pipelines were calculated assuming a flow velocity of 5 ft/sec and constant flow over a 24 hour period. A constant flow was assumed as the existing treatment ponds at both the Ridgemark and Hollister Industrial WWTPs would provide flow equalization. Incorporating the additional flow from the Hollister Industrial WWTP requires an increase in pipe size from that WWTP to the Hollister Domestic WWTP.

Table 4-3: Conveyance Option Details – Without Additional Hollister Industrial WWTP Flow

	Option 1		Option 2	
	Existing	**2022**	**Existing**	**2022**
Flow (gpd)	285,000	340,000	285,000	340,000
Diameter (inches)	6	6	6	6
Length (ft)	35,700		27,000	
Required Lift (ft)	177	236	152	196
Pump Station (hp)	30	50	25	40

Notes:
1) Pump station sizes include two pumps, one duty and one standby, each with half the total horsepower of the sizes shown.
2) Option 1 follows roadways while Option 2 uses a more direct path along the San Benito River.

Table 4-4 summarizes the estimated cost of the two conveyance options from Ridgemark to Hollister Domestic WWTP for the case where the Hollister Industrial WWTP flow is not included.

Table 4-4: Estimated Cost of Conveyance (Ridgemark WWTP flows only)

Project Element	Option 1		Option 2	
	Existing Flow	2022 Flow	Existing Flow	2022 Flow
Pipelines	$2,140,000	$2,140,000	$810,000	$810,000
Bore & Jack Crossing/Microtunneling	$50,000	$50,000	$50,000	$50,000
Appurtenances	$210,000	$210,000	$80,000	$80,000
Pump Station	$60,000	$100,000	$50,000	$80,000
Raw Construction Costs	**$2,460,000**	**$2,500,000**	**$990,000**	**$1,020,000**
Construction Contingency	$740,000	$750,000	$300,000	$300,000
Total Construction Cost	**$3,200,000**	**$3,250,000**	**$1,280,000**	**$1,320,000**
Right of Way	$50,000	$50,000	$40,000	$40,000
Engr, Legal, Admin, and Environmental	$800,000	$810,000	$320,000	$330,000
Total Capital Cost	**$4,040,000**	**$4,110,000**	**$1,640,000**	**$1,690,000**
Annualized Capital	$263,000	$267,000	$107,000	$110,000
Annual O&M	$20,000	$22,000	$9,000	$11,000
Total Annualized Cost	**$283,000**	**$290,000**	**$116,000**	**$120,000**

Notes:
1) Annualized capital cost is based on a 30-year capital recovery period at 5% interest.
2) All cost estimates are rounded to nearest $10,000. Annual O&M cost has been rounded to nearest $1,000.

Table 4-5 summarizes the conveyance options from Ridgemark to the Hollister Domestic WWTP with the addition of flow from the Hollister Industrial WWTP. For this option, the section of pipe (approximately 7,700 ft) from the Hollister Industrial WWTP to the Hollister Domestic WWTP would be upsized to accommodate the addition of the Hollister Industrial flow.

Table 4-5: Conveyance Option Details – With Additional Hollister Industrial WWTP Flow

	Option 1		Option 2	
	Existing	**2022**	**Existing**	**2022**
Flow (gpd)				
Ridgemark to Industrial	285,000	340,000	285,000	340,000
Industrial to Domestic	3,390,000	4,860,000	3,390,000	4,860,000
Diameters (inches)				
Ridgemark to Industrial	6	6	6	6
Industrial to Domestic	14	18	14	18
Length (ft)				
Ridgemark to Industrial	28,000 (6")		19,300 (6")	
Industrial to Domestic	7,700 (14" or 18")		7,700 (14" or 18")	
Required Lift (ft)				
Ridgemark to Industrial	147	193	122	153
Industrial to Domestic	72	46	72	46
Pump Station (hp)				
At Ridgemark	25	40	20	30
At Industrial	150	140	140	130

Notes:
1) Pump station sizes include two pumps, one duty and one standby, each with half the total horsepower of the sizes shown.
2) Option 1 follows roadways while Option 2 uses a more direct path along the San Benito River.
3) It is assumed that the full industrial flow would be diverted to the Domestic WWTP. Lower flow rates have not been considered to in this evaluation.

Table 4-6 summarizes the estimated cost of the conveyance options including the flow from the Hollister Industrial WWTP in addition to the Ridgemark WWTP flow.

Table 4-6: Estimated Cost of Conveyance (Ridgemark WWTP and Hollister Industrial WWTP flows)

Project Element	**Option 1**		**Option 2**	
	Existing Flow	**2022 Flow**	**Existing Flow**	**2022 Flow**
Pipelines	$2,760,000	$3,060,000	$1,660,000	$1,960,000
Bore & Jack Crossing/Microtunneling	$120,000	$150,000	$120,000	$150,000
Appurtenances	$280,000	$310,000	$170,000	$200,000
Pump Station	$330,000	$340,000	$320,000	$320,000
Raw Construction Costs	**$3,480,000**	**$3,860,000**	**$2,260,000**	**$2,630,000**
Construction Contingency	$1,040,000	$1,160,000	$680,000	$790,000
Total Construction Cost	**$4,520,000**	**$5,020,000**	**$2,940,000**	**$3,420,000**
Right of Way	$50,000	$50,000	$40,000	$40,000
Engr, Legal, Admin, and Environmental	$1,130,000	$1,250,000	$740,000	$850,000
Total Capital Cost	**$5,700,000**	**$6,320,000**	**$3,710,000**	**$4,310,000**
Annualized Capital	$371,000	$411,000	$241,000	$280,000
Annual O&M	$67,000	$81,000	$47,000	$61,000
Total Annualized Cost	**$438,000**	**$492,000**	**$289,000**	**$341,000**

Notes:
1) Annualized capital cost is based on a 30-year capital recovery period at 5% interest.
2) All cost estimates are rounded to nearest $10,000. Annual O&M cost has been rounded to nearest $1,000.

4.2 Title 22 Treatment Options

For recycled water to meet Title 22 Disinfected Tertiary water quality requirements, several treatment steps are required. Secondary effluent, the output from screening, sedimentation and biological treatment

processes, must be filtered and disinfected to meet the classification. In some cases, pretreatment is also necessary to ensure compliance with Title 22 regulations for recycled water.

This section briefly describes the industry-standard pretreatment, filtration, and disinfection technologies that meet Title 22 requirements. Pretreatment is not required by Title 22 but is included because of it widespread use to assist in meeting Disinfected Tertiary requirements. DHS-approved filtration and disinfection technologies are described in *Treatment Technology Report for Recycled Water* (DHS, August 2003).

Table 4-7 summarizes the Title 22 Requirements for filtration and disinfection, and the UV disinfection guidelines.

Table 4-7: Title 22 Requirements and UV Disinfection Guidelines

Treatment Process	Title 22 Water Quality Requirements	UV Water Quality Guidelines
Granular or Cloth Media Filtration	Effluent turbidity shall: • Have a daily average of less than 2 NTU; • Be less than 5 NTU at least 95% of the time during a 24-hour day; and, • Be less than 10 NTU at all times	The filtered effluent shall: • Have a UVT of 55% or greater at a wavelength of 254 nm; and, • Meet Title 22 water quality standards
Membrane Filtration	Effluent turbidity shall: • Be less than 0.2 NTU at least 95% of the time during a 24-hour day, and, • Be lower than 0.5 NTU at all times	The filtered effluent shall: • Have a UVT of 65% or greater at a wavelength of 254 nm; and, • Meet Title 22 water quality standards.
Chlorination or UV Disinfection	Effluent total coliform concentration shall: • Be less than 2.2 MPN/100 mL over a 7-day median, • Not exceed 23 MPN/100 mL for more than one sample within any consecutive 30-day period; and, • Be less than 240 MPN/100 mL at all times	N/A

Note:
1) Sources: Wastewater Recycling Criteria, California Code of Regulations (DHS, June 2001) and Ultraviolet Disinfection, Guidelines for Drinking Water and Water Reuse (NWRI, December 2000).

4.2.1 Pretreatment

The goal of pretreatment is to enhance the quality of influent to the filtration process. Pretreatment may be necessary in some instances to meet influent turbidity requirements to select filtration processes. Other potential objectives of pretreatment are to improve operability or to provide a more robust tertiary treatment process as a whole. Generally, wastewater characteristics and/or existing treatment processes at the WWTP are the primary factors that influence the need for pretreatment.

There are a variety of pretreatment processes that can be used to enhance the quality of wastewater to the filtration process. Pretreatment can be as simple as adding coagulant to the influent flow of the filtration step to more complex system that includes flocculation and sedimentation basins or roughing filters. The following pretreatment options were considered in this feasibility study.

- Coagulation, Flocculation, and Sedimentation Basins
  - Dens-A-Deg®
  - Actiflo®

- Roughing Filters
- Dissolved Air Flotation (DAF)

Table 4-8: Estimated Unit Cost of Pretreatment Options

Element	Unit	Construction Unit Cost	O&M Annual Unit Cost
Dens-A-Deg®	Per mgd	$200,000	$28,000[a]
Actiflo® (Flocculating Clarifier)	Per mgd	$250,000	$28,000
Roughing Filters[b]	Per mgd	$500,000	$13,000
Dissolved Air Flotation (DAF)	Per mgd	$300,000	$50,000
Ferric addition to DAF	Per mgd	$4,000	$59,000

Footnotes:
a. O&M cost for the Dens-A-Deg was assumed to be equal to that for the Actiflo unit.
b. Roughing filter costs assumed to be equal to half that of granular media filtration shown in Table 4-12.

Descriptions of each of these technologies are included in the following sections.

4.2.1.1 Coagulation, Flocculation, and Sedimentation

Coagulation and flocculation are common pretreatment steps that can be achieved through a variety of arrangements. Sedimentation is an additional step that could be included if high concentrations of solids are in the wastewater flow. The requirements for coagulation, flocculation, and sedimentation steps are dependent on wastewater characteristics (flow and quality). Potential options for these processes include construction of separate tanks for each step, inline coagulant addition and flocculation, or inline coagulant addition with separate flocculation tanks. Inline addition of coagulant requires continual optimization of chemical feeding to account for wastewater quality and to minimize chemical blinding of filters. Package pretreatment processes such as the Dens-A-Deg® and Actiflo® units are variations of coagulation and flocculation processes. These package pretreatment processes reduce the footprint of the pretreatment process compared to construction of separate tanks.

The Dens-A-Deg® unit is a high rate contact clarifying system that includes flocculation, sludge recirculation, and plate settling. This system uses chemical additions to increase flocculation and therefore increase the sedimentation rate. The internal sludge recycling system allows for an optimal concentration of solids in the flocculation reactor which generates very dense solid sediment. A slow-moving rake in the sedimentation chamber further increases the density of the removed solids which decreases the need for post-process solids handling. The unit is able to handle a variety of influent flow rates and solids concentrations and produces a clarified effluent for filtering and disinfection.

The Actiflo® unit, also know as a flocculating-clarifier, consists of coagulation, flocculation, and sedimentation steps. The flocculating-clarifier uses a coagulant and polymer for coagulation and flocculation of material and can include the addition of microsand to produce a rapidly settling dense floc during the sedimentation step. Microsand is separated from the sludge in a hydrocyclone, with minor sand losses, and returned to the clarifier.

4.2.1.2 Roughing Filters

A roughing filter is a granular media filter that is used to remove some solids prior to a polishing filter process. Roughing filter media grain size is typically larger than Title 22 Granular Media Filters, as the purpose of the process is only to enhance the influent to a second filtration process. Roughing filters are not intended to meet Title 22 requirements without further filtration but may enhance the effectiveness of subsequent filtering processes. The combination of a roughing and polishing filter process has yet to be implemented in California and its acceptance under Title 22 may not be straightforward.

4.2.1.3 Dissolved Air Floatation

The primary application for DAF is to remove algae from the secondary effluent prior to filtration. Algae are typically an issue when existing wastewater treatment consists of a pond system (existing facilities in the northern SBC region consist of treatment ponds). This process dissolves air into the wastewater under increased pressure for a short period of time and when the wastewater is brought back to atmospheric pressure the air is released as small bubbles. The bubbles then adhere to the surfaces of small floc particles and carry them to the surface where they are collected by a skimming arm and removed for further solids handling. The addition of a ferric-based coagulant to the process can result in further effluent clarification due to the increased ability of the air microbubbles to adhere to the floc.

4.2.2 Filtration

The purpose of filtration is to remove solids from the wastewater flow and produce a filtered effluent that allows the disinfection process to produce water that meets health and safety objectives of Title 22. Filtration options include granular media filtration, membrane filtration, and cloth media filtration. The California Water Recycling Criteria (December 2000) is the governing water quality criteria for recycled water filtration. These criteria specify allowable hydraulic loading rates and the turbidity requirements for filtration technologies. It should be recognized that granular media filter technologies have less stringent turbidity requirements than membrane filters (see Table 4-7).

4.2.2.1 Granular Media Filtration

This technology uses granular media filter beds of various types and sizes to remove suspended material from the secondary effluent. There are several variations of this form of filtration including mono, dual, and mixed-media filters, continuous backwash filters (up-flow and down-flow), and shallow bed traveling bridge filters.

Conventional filtration includes passage of water through a sand and/or anthracite coal bed to remove solids. A backwash step removes filtered solids from the media bed. Media size controls head loss and solids removal through the filter bed. Fine-grained media reduces pore size and removes smaller particulates; however, it also results in higher head loss through the bed and requires more frequent backwashing for efficient operation.

Table 4-9 lists the approved granular media filter technologies that have been approved by DHS. DHS also approves new granular media filter technologies that are shown to meet Title 22 criteria for recycled water production.

Table 4-9: DHS Approved Granular Media Filters

Technology Name (Manufacturer)	Description
Dynasand (Parkson Corp.)	Up-flow deep bed continuous backwash
SuperSand (Waterlink Separations)	Up-flow deep bed continuous backwash
Technasand (Westech Engineering)	Up-flow deep bed continuous backwash
Hydro-Clear (U.S. Filter-Zimpro)	Shallow pulsed bed filter
ABW (Infilco-Degremont)	Shallow bed traveling bridge
AquaABF (Aqua Aerobics Systems)	Shallow bed traveling bridge
Tetra-Denit. (Tetra Technologies)	Tetra deep bed – Denitrification Filter
Centra-Flo (Applied Process Technology)	Down-flow continuous wash filter
Fluidsand (Fluidyne, Corp.)	Up-flow continuous backwash filter
Hydrasan (Andritz Ruthner)	Up-flow continuous backwash filter
Strata-Sand (Ashbrook Corp.)	Down-flow continuous wash filter
Fuzzy Filter (Schreiber)	Compressible plastic filter media, up-flow

Note:
1) Source: DHS. "Treatment Technology Report for Recycled Water." August 2003.

4.2.2.2 Membrane Filtration

This process uses membrane technologies instead of a granular media filter for filtration. Hollow fiber micro-porous membranes with a nominal pore size typically between 0.01 – 0.2 μm are used in the filtering process. These membranes are approximately 0.5 mm in diameter, and are encapsulated into a bundle to form a filter module. Depending on the nominal pore size, the membrane technology takes the name of microfiltration, ultrafiltration or nanofiltration. During normal operation, the influent wastewater (permeate) passes from the outside of the membrane into the center and exits as filtrate. Suspended solids and microorganisms are collected on the outside surface of the hollow fiber.

Membrane technologies have also been combined with biological treatment processes. Membranes can be submerged in an activated sludge process and produce recycled water that meet Title 22 requirements. Membrane bioreactors (MBR) are used to meet secondary treatment and filtration requirements in a one step process.

Table 4-10 lists the DHS approved membrane filters for recycled water. DHS also approves new membrane technologies that are shown to meet Title 22 criteria for recycled water production.

Table 4-10: DHS Approved Membrane Filters

Technology Name	Description
Zenon	
Cycle-let	Membrane ultrafiltration
Zeeweed/Zenogem	Microfiltration process
Zeeweed 100 UF	Submerged hollow fiber ultrafiltration membrane
U.S. Filter/Memcor	
CMF	0.1 or 0.2 micron hollow fiber microfiltration – pressure filtration
CMF-Submerged	0.1 or 0.2 micron hollow fiber microfiltration – submerged/vacuum filtration
U.S. Filter/Jet Tech	
Jet Tech Products-Memjet	0.1 micron hollow fiber microfiltration – SBR/vacuum filtration
Pall Corporation	0.1 micron polyvinylidene fluoride hollow fiber microza microfiltration
Mitsubishi	Membrance bioreactor sterapore HF 0.4 micron hollow fiber polyethylene
Kubota	Membrance bioreactor 0.4 micron chlorinated polyethylene flat sheet membrane

Note:
1) Source: DHS. "Treatment Technology Report for Recycled Water." August 2003.

4.2.2.3 Cloth Filtration

This technology uses a cloth fabric media supported by open frame structures that are arranged in disk configuration to remove suspended material from the secondary effluent. The disks are completely submerged in steel or concrete tanks and filtrate is produced continuously using gravity as the driving force. Similar to granular media filtration, cloth media filtration can be combined with coagulation, flocculation and/or sedimentation step to improve filtration efficiency.

Table 4-11 lists the DHS approved cloth filters for recycled water production.

Table 4-11: DHS Approved Cloth Media Filters

Technology Name (Manufacturer)	Description
Aqua Aerobics	
102 needle felt fabric	Rotating Disk Filter
PA-13 nylon pile fabric	Rotating Disk Filter
Aqua Aerobics	
Aqua Diamond	Rotating Disk Filter
US Filter	
Hydrotech Polyester media filter	Rotating Disk Filter

Note:
1) Source: DHS. "Treatment Technology Report for Recycled Water." August 2003.

4.2.2.4 Estimated Unit Cost of Filtration Processes

The estimated unit cost for filtration varies by technology. Convention granular media filtration is a cost effective option but requires a larger footprint compared to other technologies. Membrane filters are more compact but generally are more costly than conventional filters. Table 4-12 summarizes the unit cost of various filtration processes. The estimated unit costs for each filtration process are rough estimates based on vendor quotes, recently completed projects, and general project experience.

Table 4-12: Estimated Unit Cost of Filtration Options

Element	Unit	Construction Unit Cost	O&M Annual Unit Cost
Granular Media Filters	Per mgd	$1,000,000	$13,000
Microfiltration (MF) Treatment-Pressurized	Per mgd	$1,738,000	$70,000
Microfiltration (MF) Treatment-Submerged (MBR) [a]	Per mgd	$2,193,000	$134,000
Aqua Disc Filtration	Per mgd	$300,000	$6,000

Footnote:
a) Includes elements of secondary and tertiary treatment.

4.2.3 Disinfection

Chlorination and UV disinfection are the primary disinfection methods used to meet Title 22 requirements. Other disinfection techniques include oxidation with ozone, hydrogen peroxide, and permanganate. However, these options are not typical for recycled water disinfection and are not considered in this feasibility study. This section focuses on chlorination and UV disinfection methods that could be implemented to meet Title 22 requirements.

Table 4-13 summarizes the unit construction and annual operations and maintenance (O&M) costs for the chlorination and UV disinfection. The estimated cost of chlorination assumes a sodium hypochlorite system. The estimated cost for UV disinfection assumes a low pressure clean-in-place UV system.

Table 4-13: Estimated Unit Cost for Disinfection Options

Element	Unit	Construction Unit Cost	O&M Annual Unit Cost
Chlorination (sodium hypochlorite)	Per mgd	$270,000	$23,000
UV Disinfection	Per mgd	$340,000	$40,000

4.2.3.1 Chlorination

The chlorination process would treat filtered effluent in long, narrow chlorine contact channels (CCC) sized to retain the design flow for a minimum modal contact time of 90 minutes. In actual practice, DHS assumes a hydraulic efficiency of about 75%. To meet a minimum contact time of 90 minutes, a contact time of 120 minutes is used for preliminary design purposes.

There are several forms of chlorine that can be used to achieve chlorination including chlorine gas, sodium hypochlorite, and chlorine dioxide. Each of these options has risks and benefits, with sodium hypochlorite chosen most often for other water recycling projects. At this stage, sodium hypochlorite will be assumed to be used as the disinfecting agent, and would be added immediately upstream of the CCC.

Chlorination has a long history of meeting Title 22 water quality requirements. It is expected that chlorination, per Title 22 design criteria, would have the ability to consistently produce recycled water meeting Title 22 Disinfected Tertiary requirements. Chlorination may have an impact on the salinity of the recycled water and may need to be reduced to meet user needs (see Section 4.3).

4.2.3.2 UV Disinfection

A UV disinfection process operates by passing filtered tertiary effluent flow through channels containing an array of UV lamps. The lamps irradiate the water with 254 μm wavelength light to meet Title 22 disinfection requirements for coliform and virus. A small amount of chlorination would likely be needed to maintain chlorine residual and prevent microbial growth in the distribution system. Although this is not a Title 22 requirement the addition often can satisfy customers concerns and provide public assurance that the recycled water is safe for its intended uses.

UV transmittance (UVT) is the primary characteristic of the wastewater that influences the UV disinfection process. UVT is a measure of UV light passage through the filtered wastewater that can be correlated to disinfection efficiency. Generally, higher suspended solids and high turbidity levels in wastewater reduce the UVT. However, UVT cannot be directly correlated to suspended solids and/or turbidity.

As previously discussed in Section 3, the DHS uses the NWRI *UV Disinfection Guidelines for Drinking Water and Water Reuse* (December 2000) as guidance when evaluating proposed UV disinfection projects. The DHS will consider alternative approaches as these guidelines are not laws. However, these guidelines may be the basis of future regulations.

4.3 Salinity Control Options

Based on wastewater quality data and crop tolerances, salinity control is necessary to provide a recycled water quality that is suitable for agricultural and/or urban use. As previously discussed in the Market Assessment Section, a range of 500 mg/L to 700 mg/L TDS was identified as the acceptable salinity level for a recycled water project. TDS levels below 500 mg/L would be even more beneficial.

Salinity levels of recycled water can be managed through several strategies including 1) direct management of the recycled water (salinity control after M&I use), 2) management of salt before M&I use (salinity control before M&I use), or 3) a combination salinity control before and after M&I use. This section identifies the salinity control options that were investigated and evaluated for a potential recycled water project.

4.3.1 Salinity Control After M&I Use

Recycled water salinity levels can be managed directly by blending recycled water with lower salinity water or through advanced treatment of recycled water. The following sections describe these two options for controlling salinity of recycled water after M&I use.

4.3.1.1 Blending Recycled Water with Lower Salinity Water

Blending recycled water with either CVP water or a low salinity groundwater is one option to manage TDS concentrations. Blending requirements are a function of recycled water salinity, salinity of CVP water or groundwater, and the TDS goal. As previously discussed, wastewater TDS levels vary from 1,100 at the Hollister Domestic WWTP (See Table 2-6) to about 1,960 mg/L at the Ridgemark WWTP (See Table 2-15). However, for evaluation purposes it is assumed that the recycled water supply would have a TDS level of approximately 1,200 mg/L.

CVP water has a TDS concentration of about 300 mg/L, which means blending CVP water with recycled water is an option that can meet the strictest potential TDS goal of 500 mg/L.

Table 4-14 summarizes the results of a CVP water and recycled water blend ratio analysis.

Table 4-14: CVP Water and Recycled Water Blend Ratio

Recycled Water TDS level (mg/L)	CVP water TDS level (mg/L)	TDS goal (mg/L)	Blended Supply	
			Recycled Water Portion	CVP Water Portion
1200	300	500	22%	78%
1200	300	600	33%	67%
1200	300	700	44%	56%
1200	300	800	56%	44%

Use of CVP water for blending would require construction of a blend facility (inline facility or reservoir) and associated pipeline infrastructure to bring the supplies to a common point. The location of the blend facility is dependent on the market area to be serviced. A recycled water/CVP blend supply would need to be isolated from the rest of the existing CVP system to prevent recycled water from co-mingling with the M&I CVP supply. A reservoir could be used to provide the required air gap separation that is necessary due to the use of the CVP supply for M&I purposes. Recycled water can not be cross connected to a potable water supply. A pump stations would be required to pump the blended supply to the potential customers.

CVP water is a hydrologically dependent supply that is not 100% reliable. Therefore, either water quality or quantity of recycled water use would need to be compromised during years when CVP water is not sufficient to meet blend requirements. Depending on the management strategy of a CVP blend project, recycled water supply may not be used during dry or critically dry years.

Recycled water could also be blended with low salinity groundwater in order to meet the TDS goals. Groundwater of 300 mg/L TDS would be need located for groundwater blending to be considered a

practical option. Currently, groundwater of this salinity has not been identified in the northern SBC region.

Recycled water blending with lower salinity water can be implemented in conjunction with other salinity control measures to jointly and reliable meet water quality goals. Projects to improve M&I water quality are expect to be implemented in the future. However, these projects may not fully meet the salinity control needs.

4.3.1.2 Advanced Treatment of Recycled Water

This option includes desalination of recycled water with Reverse Osmosis (RO). The advance treated recycled water would then be suitable for direct agricultural and/or urban use. RO and microfiltration facilities would be required at the wastewater treatment plant in order to remove salts from the recycled water.

Brine is a waste byproduct of the RO process and is a major issue associated with this option. Brine disposal options such as land evaporation and exporting brine to the Watsonville Wastewater Treatment Plant via pipeline were identified as the environmental superior options in the PEIR (David Powers, August 2003). Unlike the CVP blend option, advanced treatment of recycled water would provide a reliable water supply with a relatively consistent water quality. However, RO treatment is an energy intensive process and is expected to have a higher O&M cost than CVP blending. RO treatment has the additional benefit of allowing high quality recycled water to be injected or percolated for groundwater recharge. It should be noted that groundwater recharge may not be considered a significant benefit as wastewater is currently disposed of though percolation ponds.

Table 4-15 summarizes the unit cost for RO treatment and brine disposal. Brine disposal is assumed to be achieved with evaporation ponds to crystallize salt which is subsequently transported to a land disposal facility. Brine disposal construction cost calculations can be found in Attachment C.

Table 4-15: Estimated Unit Cost for Advanced Treatment Salinity Control Options

Element	Unit	Construction Unit Cost	O&M Annual Unit Cost
Reverse Osmosis (RO) Treatment	Per mgd	$3,000,000	$206,000
Brine Disposal in addition to RO	Per mgd	$3,650,000	$100,000

4.3.2 Salinity Control Before M&I Use

Improving the water quality (reducing the salinity and hardness) of the M&I supply would improve the quality of wastewater resulting in lower salinity recycled water. A potable supply with low hardness would reduce or eliminate the need for M&I water softening, which would reduce salinity in recycled water. As previously discussed in Section 2, treatment of CVP and groundwater are two options being considered to improve future M&I supply. Implementation of these types of projects is discussed in the following sections.

4.3.2.1 Treat CVP Water for Potable Use

CVP water is a low salinity and low hardness supply that could be treated for M&I use. The Proposed Interim Surface Water Treatment Rule requires CVP water to be filtered and disinfected to control pathogens prior to M&I use.

As discussed in Section 2, treatment of CVP water for M&I use has already been implemented. Hollister and Sunnyslope constructed a surface water treatment plant (Membrane Filtration Plant) to provide

treated CVP water for M&I use. In addition, other CVP water treatment projects are in the process of being implemented or are being considered. San Juan Bautista is in the design phase of a one mgd water treatment plant to augment groundwater supplies. SSCWD is also considering implementation of another water treatment facility to provide additional CVP supply for M&I use. The SBCWD has a CVP M&I entitlement of approximately 8,250 AFY. However, CVP M&I supply is subject to hydrologic conditions that can result in supply cutbacks. Currently, the M&I supply is reliable as only about 50% of the entitlement is allocated. Additional allocations would impact the reliability of the overall M&I supply. Banking or transfers of CVP supply can address this reliability issue to a degree. However, during these critical dry years, groundwater would be used to meet M&I demand.

Water treatment plants would consist of filtration and disinfection facilities. Solids handling would be required or solids could be discharged to the sanitary sewer system. A conveyance pipeline would be constructed to connect the water treatment plant to the existing distribution system.

With CVP TDS of 300 mg/L and assuming a salinity addition of 300 mg/L (conservative estimate) associated with M&I use, recycled water quality could have TDS of about 600 mg/L. This assumes that CVP meets all M&I water demands and all water softeners are eliminated. This TDS level (600 mg/L) falls within the TDS goal range identified above, and would allow recycled water to be used directly for crop irrigation. With direct use of recycled water, a relatively small distribution area would be required to serve the entire recycled water supply.

4.3.2.2 Treat Groundwater for Potable Use

Advanced treatment (RO treatment) of groundwater was identified in the GMP Update to improve the quality of groundwater for M&I use. RO treatment of groundwater would reduce salinity and hardness of the M&I supply, which would result in lower salinity recycled water. Water softening could be required prior to RO treatment if calcium precipitate membrane fouling is a concern.

The major challenge with RO treatment of groundwater is disposal of the brine byproduct. Construction of an export pipeline to the Watsonville Wastewater Treatment Plant or brine evaporation ponds in conjunction with trucking of salts from the groundwater treatment facilities alternative were identified as the environmentally superior projects for brine disposal in the Program Environmental Impact Report (David Powers, 2003).

It is envisioned that existing groundwater wells would be connected to the RO treatment facility and a conveyance pipeline would be constructed to connect to the existing potable water distribution system. To date the treatment goals of the groundwater treatment projects have not be set. For discussion purposes, it is assumed that the treated groundwater would have a TDS level of 300 mg/L. Assuming a 300 mg/L TDS increase from M&I use, recycled water would have an estimated TDS of approximately 600 mg/L, allowing for direct use of the supply.

Groundwater is a more reliable supply that is not as hydrologically dependent as CVP water. Therefore, it is anticipated that groundwater treatment would result in a more uniform water quality of the recycled water supply for all hydrologic conditions. RO treatment is an energy intensive process resulting in relatively high power costs. The environmentally superior brine disposal options require significant infrastructure or are land intensive. Both disposal options would have significant capital costs. It should be noted that, the San Juan Bautista WWTP has a discharge permit to the Pajaro River and therefore may not require additional brine disposal methods.

4.3.3 Salinity Control Conclusions/Recommendation

Although surface water treatment plants by San Juan Bautista and Sunnyslope would improve salinity of recycled water, CVP supply is not 100% reliable and groundwater would continue to be needed to supplement supply and meet future demand. Therefore, treatment of CVP would not in itself solve the salinity control needs.

Groundwater treatment projects are expected to be the long-term alternative for improving M&I water quality in SBC. These facilities in conjunction with treatment of CVP water would likely be the long-term salinity solution for a recycled water project (assuming recycled water TDS goal of 500 mg/L). If the recycled water TDS is greater than 700 mg/L, according to the Memorandum of Understanding for the *Water and Wastewater Master Plan*, additional salinity control measures may need to be employed.

Recognizing that implementation of groundwater treatment projects are a long-term solution, it is recommended that recycled water be blended with higher quality water or desalinated, as an interim salinity management step, to meet the desired water quality goals of the project. For the purposes of the analysis in this section, it is assumed that the interim salinity management method is blending with CVP water and in the long-term recycled water quality will improve so that it can be used directly.

4.4 Delivery Area Options

This section summarizes the recycled water delivery options that were developed and evaluated for the feasibility study. Preliminary alignments were developed for the three major agricultural markets identified in the market assessment section. Two urban distribution options to large customers were also developed. Delivery options are a function of irrigation system operations, recycled water supplies, and salinity control measures. Regional CVP allocation is another design criterion that may need to be considered. In the San Juan Valley, the existing CVP allocation is 1.2 AFY per acre. This could limit the use of recycled water supply as using CVP water as a blending source to meet the salinity goal may not be possible in dry years.

Construction of distribution systems are required to deliver recycled water to potential customers. Development of the distribution options included sizing pipeline infrastructure, pump stations, and blending infrastructure. The distribution options identified and evaluated in this section are:

- Wright/Buena Vista Service Area
- Freitas Road Service Area
- Existing CVP System (San Juan Valley) Service Area
    - Northwestern Area Service Area
- Ridgemark Golf Course (flow from Ridgemark WWTP)
- San Juan Oaks Golf Course Development (flow from the Hollister Domestic WWTP)

The Wright/Buena Vista, Freitas Road, and Existing CVP service areas, and combinations thereof, are the primary agricultural opportunities to use recycled water produced at the Hollister Domestic WWTP. Recycled water production at the Domestic WWTP could include combining flows from the Hollister Domestic, Hollister Industrial, Ridgemark I, and Ridgemark II facilities. Table 4-16 summarizes the four potential supply scenarios at the Hollister Domestic WWTP. For the following analysis, only Scenario 1 is considered as it is the only facility with immediate treatment improvement plans in progress.

Table 4-16: Potential Supply Scenarios at the Hollister Domestic WWTP

Supply Scenario	Existing Flow (mgd)	Future Flow (mgd)
1. Hollister Domestic	2.5	5.0
2. Hollister Domestic and Industrial	5.6	8.2
3. Hollister Domestic, Ridgemark I & II	2.8	4.0
4. Hollister Domestic and Industrial, Ridgemark I & II	5.9	8.5

Note:
1) The Hollister Industrial WWTP treats the cannery flow from mid June through mid October. Industrial water quality characteristics may limit the use of the supply. Recycled water demand may also be a limiting factor on use of the industrial wastewater.

As described in Section 4.3.3, CVP water would be blended with recycled water to manage salinity and meet customer needs. Pipeline sizes for the agricultural options were determined assuming peak day water demand would be met with blended recycled water and CVP water. The evaluation also assumes agricultural irrigation would be scheduled over a 20 hour period, resulting in the ability to accommodate shutdowns and maintenance. This operational strategy would control peak demand and minimize the distribution pipeline sizes. Based on these assumptions, the peak water demand was estimated to be 6 gpm/acre of agriculture. The pipeline alignment for the options listed above generally follows existing roads. However, in this agricultural setting, recycled water pipelines would likely be constructed adjacent to existing road shoulders minimizing impacts to agricultural fields.

For urban options, night time irrigation is assumed (12 hour irrigation period). Assuming a uniform flow over the 12-hour period, the peak water demand would be approximately 8.3 gpm/acre. This operational strategy was used as the basis for the sizing of urban distribution infrastructure.

Table 4-17 summarizes the preliminary design criteria used to size pipelines and pump stations for each distribution option.

Table 4-17: Distribution Options Preliminary Design Criteria

Element	Unit	Design Criteria
Distribution Delivery Pressure	Psi	60
Max Flow Velocity	ft/sec	5
Friction Factor, f	-	0.025

It should be noted that the alignments and sizes identified below were developed to assess potential distribution costs. The final alignments will depend on customer needs, environmental constraints, costs, and other factors. Reservoir sizing for options that require a blend point was based on the total amount of water that would be needed to sustain normal operations for 10 to 20 minutes during the peak day. This storage would facilitate a smooth shutdown of the system when issues arise.

4.4.1 Wright Road/Buena Vista Service Area

The Wright Road/Buena Vista service area is a primary opportunity to use recycled water produced at the Hollister Domestic WWTP. The Wright Road/Buena Vista service area consists of 890 acres of irrigated agricultural land. Although the area is located within the CVP zone of benefit, a CVP system has not been constructed to date. Consequently, groundwater is the sole source of water supply for the area. The annual irrigation demand for this area is 2,290 AFY with a peak water demand of approximately 7.6 mgd. Due to projected wastewater flow increases, this distribution option would need to be combined with another option to maximize recycled water use. Table 4-18 summarized the annual recycled water use assuming supply scenario 1 and a salinity goal of 700 mg/L.

Table 4-18: Annual Recycled Water Use

Supply Scenario – TDS Goal of 700 mg/l	Total Irrigation Demand (AFY)	Delivered Supply (AFY)	Recycled Water Use (AFY)
Scenario 1	2,290	1,070	470

Notes:
1) Assumes delivered water is allocated at 1.2 AF/acre
2) Assumes 600 AFY of 300 mg/L TDS blending water is available.
3) Assumes recycled water TDS = 1200 mg/L.

A CVP water pipeline would need to be constructed to the blend facility at the Hollister Domestic WWTP. This option would require an air gap separation of the CVP system used for recycled water distribution from the rest of the CVP system. A small tank (reservoir) with CVP supply applied above the tank water level could be used to achieve this separation. A blend facility and pump station would also be required for salinity control and distribution, respectively.

This distribution option may also be limited due to availability of CVP supply. Currently the average annual CVP supply is allocated and is used in other areas within the county. Little to no CVP supply would be available for blending in the Wright Road/Buena Vista service area during normal or dry years. CVP supply would likely be available during wet years. Therefore, alternative means of salinity control may need to be employed.

Figure 4-2 shows the potential Wright Road/Buena Vista recycled water service area.

Figure 4-2: Potential Wright Road/Buena Vista Recycled Water Service Area

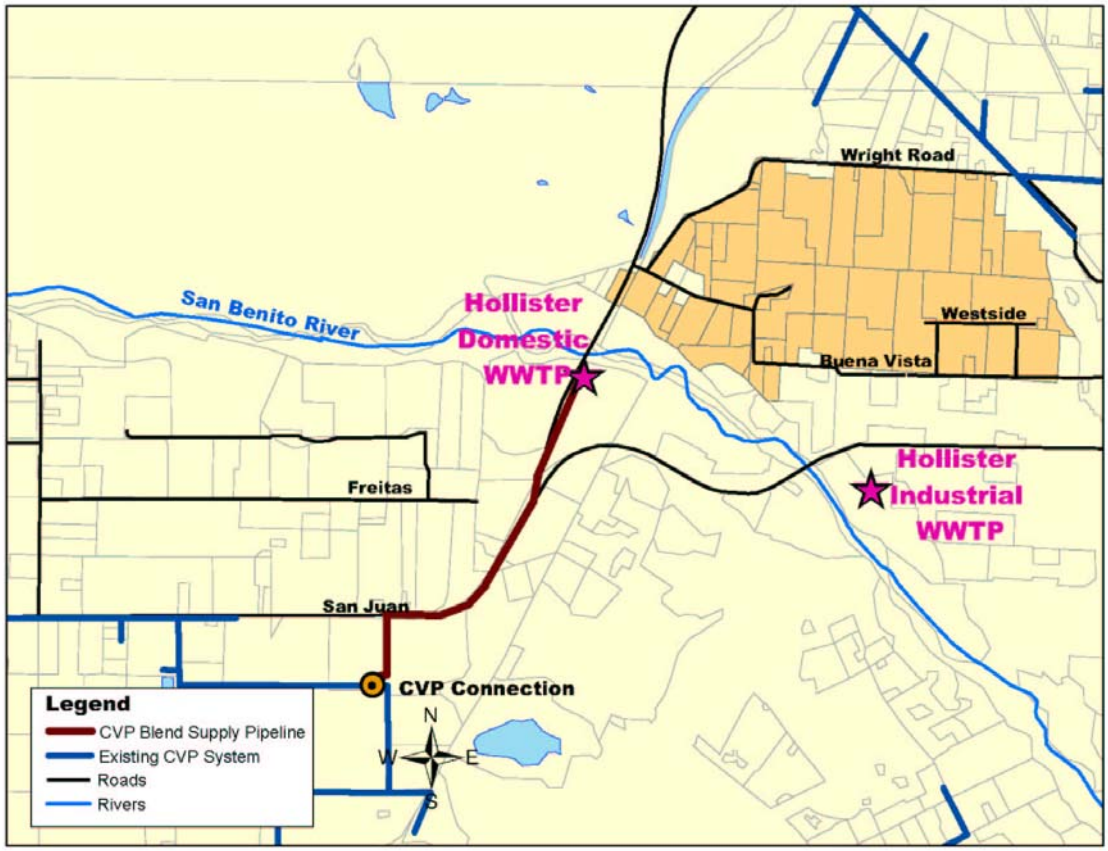


Table 4-19 summarizes the conceptual pipeline sizes and lengths for distribution to the Wright/Buena Vista service area.

Table 4-19: Conceptual Pipeline Sizes and Lengths to Wright Road/Buena Vista Service Area

Diameter (in)	Pipeline Lengths (ft)
8	7,200
10	1,700
14	2,300
20	2,800
24	5,300
Total	**19,300**

Table 4-20 summarizes the estimated cost for distribution to the Wright Road/Buena Vista service area.

Table 4-20: Estimated Cost for Distribution to the Wright Road/Buena Vista Service Area

Project Elements	Estimated Cost
Pipelines	$2,590,000
Bore & Jack Crossing/Microtunneling - 150 ft. San Benito River crossing, 150 ft Hwy 156 crossing	$230,000
Pump Station – 2x200 hp duty & 1x200 hp standby	$1,200,000
Appurtenances	$280,000
Reservoir – 100,000 gal.	$100,000
Raw Construction Cost	**$4,400,000**
Construction Contingency (30%)	$1,320,000
Total Construction Cost	**$5,720,000**
Land Acquisition Costs for Reservoir	$1,000
Right of Way	$40,000
Engr, Legal, Admin, and Environmental (25%)	$1,430,000
Total Capital Cost	**$7,190,000**
Annualized Capital	$468,000
Annual O&M	$189,000
Total Annualized Cost	**$657,000**

Notes:
1) Annualized capital cost is based on a 30-year capital recovery period at 5% interest.
2) All cost estimates are rounded to nearest $10,000. Annual O&M cost has been rounded to nearest $1,000.

4.4.2 Freitas Road Service Area

The Freitas Road area is another agricultural opportunity to use recycled water produced at the Hollister Domestic WWTP. The Freitas Road service area consists of approximately 1,900 acres of irrigated agricultural. Although the area is located within the CVP zone of benefit, a CVP distribution system has not been constructed to date. Currently, groundwater is the sole source of water supply for the area. The peak water demand for the Freitas Road service area is estimated to be 16.3 mgd.

Table 4-21 summarizes the annual recycled water use assuming supply scenario 1 and a salinity goal of 700 mg/L.

Table 4-21: Annual Recycled Water Use

Supply Scenario – TDS Goal of 700 mg/l	Total Irrigation Demand (AFY)	Delivered Supply (AFY)	Recycled Water Use (AFY)
Scenario 1	4,600	2,270	1,010

Notes:

1) Assumes delivered water is allocated at 1.2 AF/acre. If recycled water is provided to serve 100% of demand, up to 3,330 AFY of recycled water could be served for a 5.0 MGD treatment flow with no storage.
2) Assumes 1,260 AFY of 300 mg/L TDS blending water is available.
3) Assumes recycled water TDS = 1200 mg/L.

A CVP blend water pipeline would need to be constructed to the blend facility at the Hollister Domestic WWTP. This option would require an air gap separation of the CVP system used for recycled water distribution from the rest of the CVP system. A small tank (reservoir) with CVP supply applied above the tank water level could be used to achieve this separation. A blend facility and pump station would also be required for salinity control and distribution, respectively.

Figure 4-3 shows the potential Freitas Road recycled water service area.

Figure 4-3: Potential Freitas Road Recycled Water Service Area

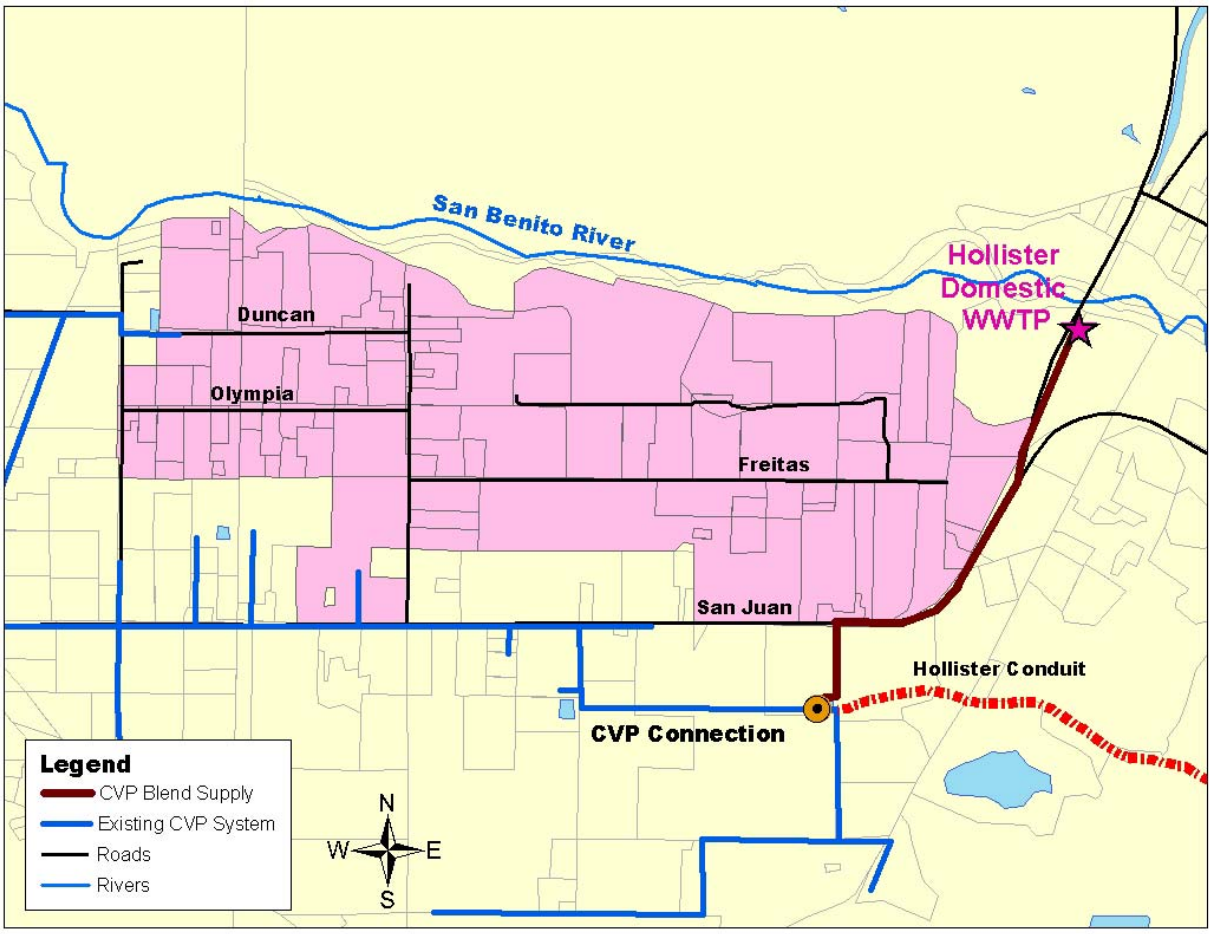


Table 4-22 summarizes the conceptual pipeline sizes and lengths for distribution to the Freitas Road service area.

Table 4-22: Conceptual Pipeline Sizes and Lengths to Freitas Road Service Area

Diameter (in.)	Pipeline Lengths (ft)
16	13,400
24	6,600
36	8,900
Total	**28,900**

Table 4-23 summarizes the estimated cost for distribution infrastructure for the Freitas Road service area.

Table 4-23: Estimated Cost for Distribution to the Freitas Road Service Area

Project Elements	Estimated Cost
Pipelines	$5,320,000
Bore & Jack Crossing - 150 ft. Hwy. 156 crossing	$130,000
Pump Station – 3x250 hp duty & 1x250 hp standby	$2,000,000
Appurtenances	$540,000
Reservoir – 150,000 gal	$150,000
Raw Construction Cost	**$8,140,000**
Construction Contingency (30%)	$2,440,000
Total Construction Cost	**$10,580,000**
Land Acquisition Costs for Reservoir	$1,000
Right of Way	$40,000
Engr, Legal, Admin, and Environmental (25%)	$2,650,000
Total Capital Cost	**$13,270,000**
Annualized Capital	$863,000
Annual O&M	$335,000
Total Annualized Cost	**$1,198,000**

Notes:
1) Annualized capital cost is based on a 30-year capital recovery period at 5% interest.
2) All cost estimates are rounded to nearest $10,000. Annual O&M cost is rounded to nearest $1,000.

4.4.3 Existing CVP System (San Juan Valley)

This option assumes recycled water would be produced at the Hollister Domestic WWTP. Recycled water would be distributed through the existing CVP system to customers in the San Juan Valley (approximately 5,950 irrigated acres). The peak water demand for the existing CVP system in the San Juan Valley is approximately 44.8 mgd, with a delivered water demand of 29 mgd. Table 4-24 summarizes the annual recycled water use assuming supply scenario 1 and a salinity goal of 700 mg/L.

Table 4-24: Annual Recycled Water Use

Supply Scenario – TDS Goal of 700 mg/l	Total Irrigation Demand (AFY)	Delivered Supply (AFY)	Recycled Water Use (AFY)
Scenario 1	11,720	7,150	3,150

Notes:
1) Assumes delivered water is allocated at 1.2 AF/acre
2) Assumes 4,000 AFY of 300 mg/L TDS blending water is available.
3) Assumes recycled water TDS = 1200 mg/L.

A recycled water transmission pipeline (9,600 feet) would be constructed to delivery recycled water from the Hollister Domestic WWTP to the CVP connection point shown in Figure 4-4. Due to the large demand in this area, recycled water flows from multiple sources could be used in this region. This option

would require an air gap separation of the CVP system used for recycled water distribution from the rest of the CVP system. A small tank (reservoir) with CVP supply applied above the tank water level could be used to achieve this separation. A blend facility and pump station would also be required for salinity control and distribution, respectively. Breaking the head in the existing CVP pipeline at the blend point may not be practical, as it will require a large pump station to being the blended water to the required head at that point. Alternatives to this strategy are discussed in Section 6.

Use of the existing CVP system would impact the proposed San Juan Bautista CVP water treatment plant and Natural Selections M&I use of CVP water. A CVP extension would need to be constructed to provide CVP water to the proposed San Juan Bautista WWTP (See Figure 4-4). An extension to Natural Selection was determined to be impractical due to the length of pipeline that would be required. Therefore, it is assumed that groundwater would be used to meet potable water demands.

Figure 4-4 shows the transmission pipeline alignment and the blend point for distribution to the existing CVP system. Conceptually, a pump station would be constructed at the Hollister Domestic Plant to convey recycled water to the blend point. This pump station would be composed of two pumps, one duty pump and one standby pump. For either supply scenario, each pump would be a 100 hp pump. The facilities at the blend point would include a 500,000 gallon tank, pump station, and blend facilities. The reservoir would act as both a blend tank and air gap separation for the CVP system. The pump station used to pressurize the blended water back into the existing CVP distribution pipeline would be large due to the volume of water to be pumped and the extent of the distribution system. To overcome the head loss from this length of pipe and to supply water to customers at the assumed 60 psi, the blend point pump station would have three duty 300 hp pumps and one standby 300 hp pump.

Figure 4-4: Pipeline Alignment and Blend Point for Distribution to the Existing CVP Service Area

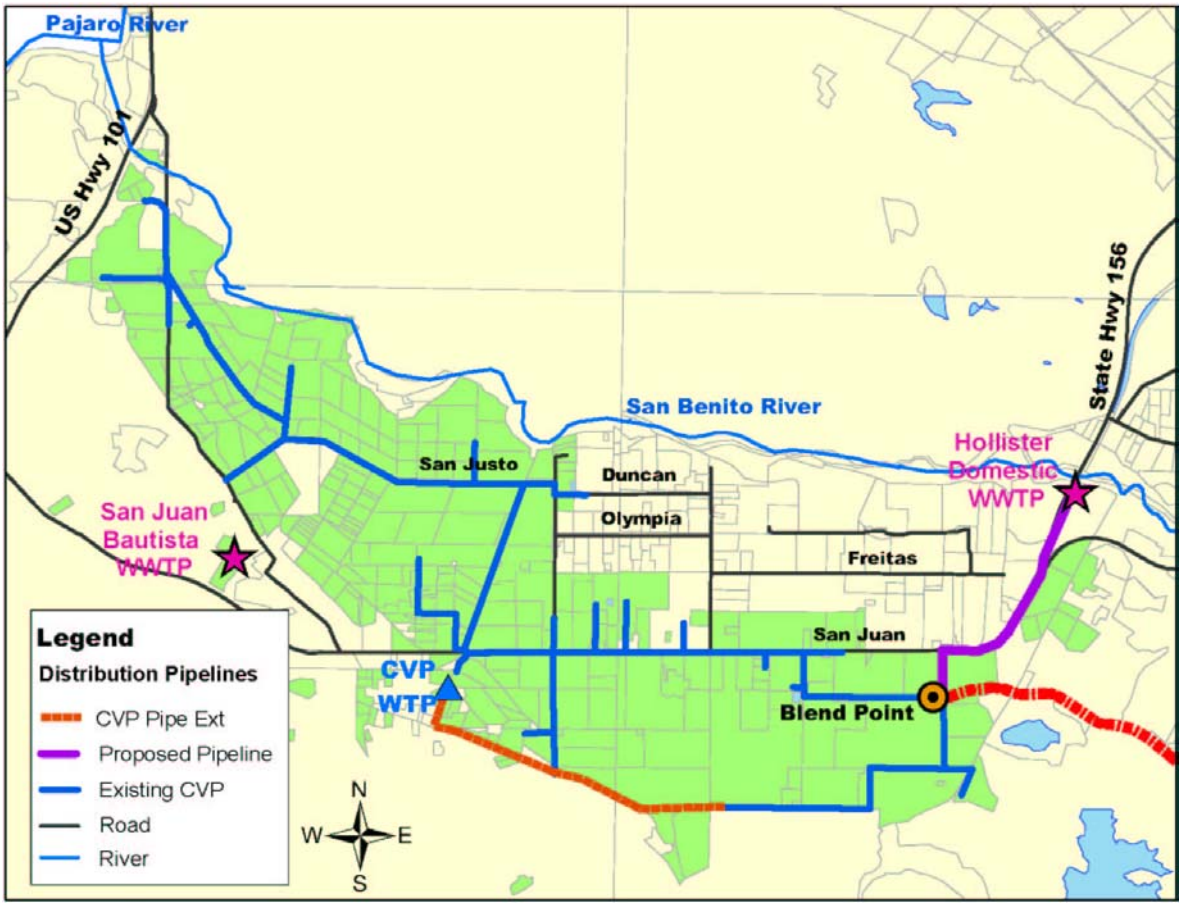


Table 4-25 summarizes the estimated cost for distribution to the existing CVP service area. For a salinity goal of 700 mg/l recycled water use is constrained by the salinity goal and the service area demand.

Table 4-25: Estimated Cost for Distribution to the Existing CVP Service Area

Project Elements	Estimated Cost
Pipelines	$860,000
Bore & Jack Crossings/Microtunneling - 150 ft. Hwy. 156 crossing	$70,000
Pump Stations – (see text)	$2,640,000
Appurtenances	$90,000
Reservoir – 500,000 gal	$500,000
Raw Construction Cost	**$4,160,000**
Construction Contingency (30%)	$1,250,000
Total Construction Cost	**$5,410,000**
Land Acquisition for Reservoir and Distribution Pump Station	$20,000
Right of Way	$10,000
Engr, Legal, Admin, and Environmental (25%)	$1,350,000
Total Capital Cost	**$6,790,000**
Annualized Capital	$441,000
Annual O&M	$399,000
Total Annualized Cost	**$840,000**

Notes:
1) Annualized capital cost is based on a 30-year capital recovery period at 5% interest.
2) All cost estimates are rounded to nearest $10,000. Annual O&M costs are rounded to nearest $1,000.

4.4.4 Northwest Service Area (Portion of Existing CVP Service Area)

The Northwest Service Area is a portion of the existing CVP service area that was identified as the specific service area for the potential recycled water supplies from San Juan Bautista, Natural Selection, and Pride of San Juan. This option would use the existing CVP system to serve recycled water to growers in the Northwest Service Area. The Northwest area consists of approximately 1,120 acres and has a peak water demand of 9.5 mgd. Natural Selection and Pride of San Juan are located adjacent to the existing CVP pipelines. Recycled water from Natural Selection and Pride of San Juan would be conveyed to a blend point using a six inch diameter pipeline through pump stations with one eight hp duty pump and one eight hp standby pump at each location. Existing supply is 0.29 mgd (300 AFY) while the future supply is 0.74 mgd (660 AFY).

Table 4-26 summarizes the recycled water use in the Northwest Service Area for existing and future supply scenarios.

Table 4-26: Annual Recycled Water Use

Supply Scenario – TDS Goal of 500 mg/l	Total Irrigation Demand (AFY)	Delivered Supply (AFY)	Recycled Water Use (AFY)
Existing Flow	2,184	1,350	300
Future Flow	2,184	1,350	590

Notes:
1) Assumes delivered water is allocated at 1.2 AF/acre
2) Assumes up to 1,350 AFY of 300 mg/L TDS blending water is available.
3) Assumes recycled water TDS = 1200 mg/L.

A recycled water transmission pipeline from the San Juan Bautista WWTP to the existing CVP pipeline would be constructed to tie into the existing system using a 4 inch pipeline and a pump station with one eight hp duty pump and one eight hp standby pump. This option would require an air gap separation of the CVP system used for recycled water distribution from the rest of the CVP system. A small tank (reservoir) with CVP supply applied above the tank water level could be used to achieve this separation.

A blend facility and pump station would also be required for salinity control and distribution, respectively. The blend point pump station would be composed of four 100 hp duty pumps and one 100 hp standby pump.

A limitation of the Northwest area is related to potential use of the existing CVP system option. Use of the existing CVP service area would limit the recycled water that could be served in the Northwest area as blended supply in the system would have higher salinity than CVP water. Under this scenario, recycled water from San Juan Bautista, Natural Selection, and Pride of San Juan would be limited to the high demand periods. Alternatively, recycled water could be demineralized and added to the CVP system. However this is not considered a cost effective option for salinity control as it provides no M&I supply benefits.

Figure 4-5 shows the pipeline alignment for distribution to the Northwest Service Area.

Figure 4-5: Pipeline Alignment for Distribution to the Northwest Service Area

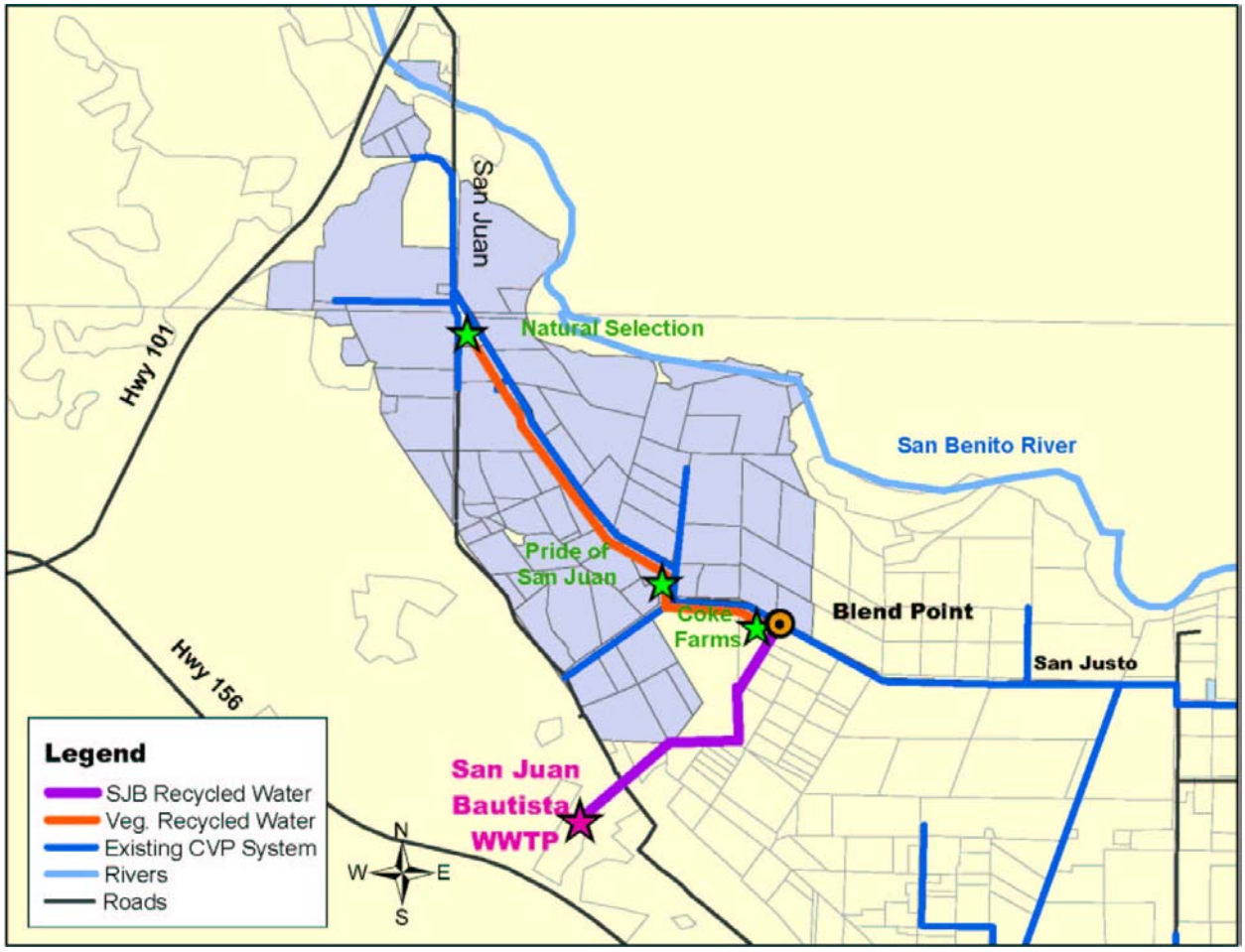


Table 4-27 summarizes the estimated cost of the distribution infrastructure for the Northwest service area.

Table 4-27: Estimated Cost for Distribution to the Northwest Service Area

Elements	Estimated Cost
Pipelines	$380,000
Bore & Jack Crossings/Microtunneling – 200 ft San Juan Creek Crossing	$20,000
Pump Stations – (see text)	$1,100,000
Appurtenances	$40,000
Reservoir – 100,000 gal	$100,000
Raw Construction Cost	**$1,630,000**
Construction Contingency	$490,000
Total Construction Cost	**$2,120,000**
Land Acquisition for Reservoir and Distribution Pump Station	$10,000
Right of Way	$20,000
Engr, Legal, Admin, and Environmental	$530,000
Total Capital Cost	**$2,680,000**
Annualized Capital	$174,000
Annual O&M	$172,000
Total Annualized Cost	**$347,000**

Notes:
1) Annualized capital cost is based on a 30-year capital recovery period at 5% interest.
2) All cost estimates are rounded to nearest $10,000. Right of Way and Annual O&M costs have been rounded to nearest $1000.

4.4.5 Ridgemark Golf Course

This urban option was identified in the *SSCWD Recycled Water Feasibility Study* (MWH, November 2001) and is considered because of its close proximity to the SSCWD Ridgemark WWTPs. The potential customer identified under this distribution option is the Ridgemark GC. This large urban customer has an estimated annual demand of 600 AF and an estimated peak month (July) demand of approximately 110 AF (1.2 mgd). Combined existing supplies from the Ridgemark I & II WWTPs are 0.29 mgd (320 AFY) while future supplies are 0.34 mgd (380 AFY). Conceptually, recycled water would be blended with CVP water at the Ridgemark II facility and then distributed to the golf course. Table 4-28 shows the annual recycled water use for this option.

Table 4-28: Annual Recycled Water Use

Supply Scenario – TDS Blend Supply Goal	Recycled Water Use No CVP Limit (AFY)
Existing RMK I & II - 500 mg/L	120
Future RMK I & II – 500 mg/L	120

Note:
1) Assumes recycled water TDS = 1300 mg/L.

A new pump station at the Ridgemark I WWTP with one 15 hp duty pump and one 15 hp standby pump would be used to convey secondary treated wastewater to the Ridgemark II WWTP where recycled water facilities would be constructed. It is assumed that the existing eight-inch pipeline would be used to convey flow from Ridgemark I to Ridgemark II. A pump station consisting of two 90 hp pumps (one duty and one standby) would be constructed at the Ridgemark II WWTP to deliver blended water to the golf course through a 12-inch (approximately 4,500 feet) distribution pipeline.

Figure 4-6 shows the pipeline alignment for distribution to the Ridgemark GC.

Figure 4-6: Pipeline Alignment for Distribution to the Ridgemark GC

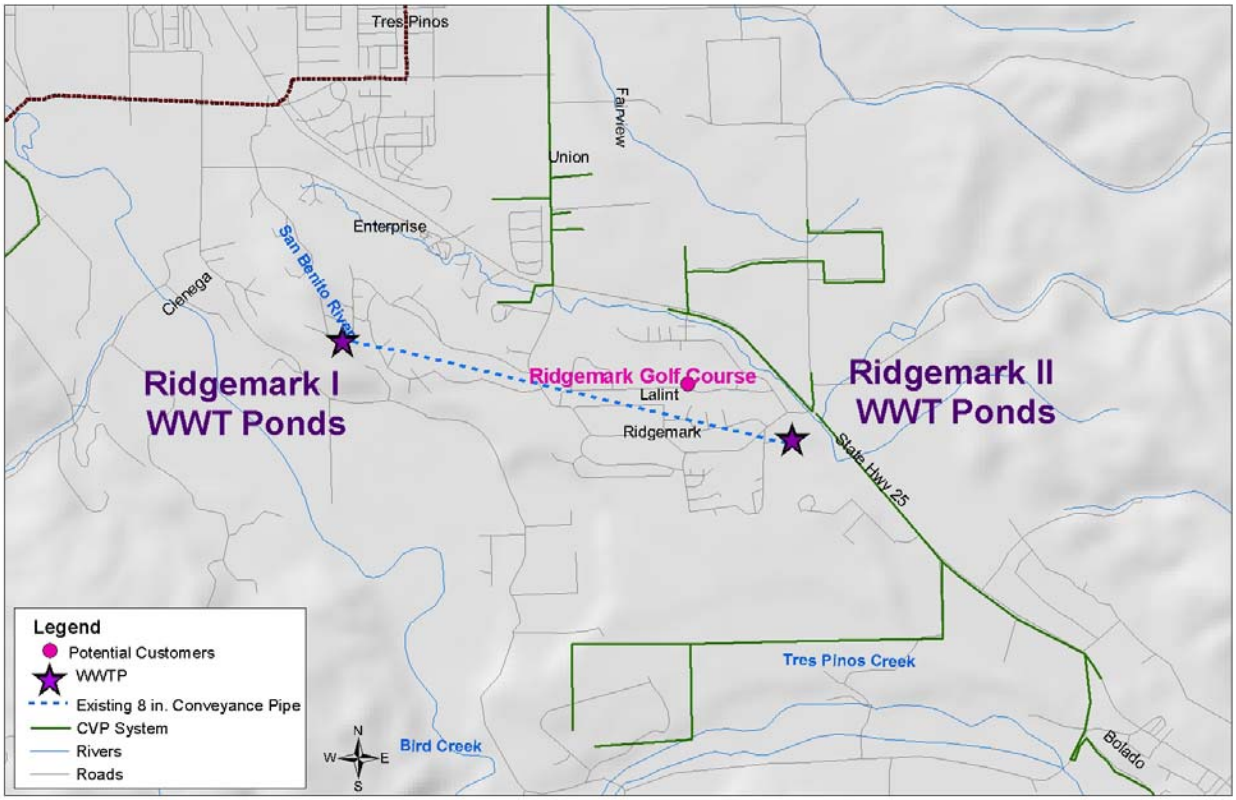


Table 4-29 summarizes the estimated cost of the distribution infrastructure for the Ridgemark GC.

Table 4-29: Estimated Cost for Distribution to the Ridgemark GC

Project Elements	Estimated Cost
Pipelines	$320,000
Appurtenances	$30,000
Pump Stations – (see text)	$420,000
Raw Construction Cost	**$770,000**
Construction Contingency (30%)	$230,000
Total Construction Cost	**$1,000,000**
Right of Way	$10,000
Engr, Legal, Admin, and Environmental (25%)	$250,000
Total Capital Cost	**$1,250,000**
Annualized Capital	$81,000
Annual O&M	$48,000
Total Annualized Cost	**$129,000**

Notes:
1) Annualized capital cost is based on a 30-year capital recovery period at 5% interest.
2) All cost estimates are rounded to nearest $10,000. Annual O&M cost has been rounded to nearest $1000.
3) Does not include CVP pipeline extension to Ridgemark II.

4.4.6 San Juan Oaks Golf Course Development

Conceptually, this urban opportunity would use recycled water from the Hollister Domestic WWTP. Irrigation demand at the San Juan Oaks GC Development is expected to increase to approximately 790

AFY in the near future. Peak month (July) average day demand is approximately 1.4 mgd. Assuming a 12-hour irrigation period, the design flow is 2.8 mgd (assumed for cost estimate). Alternatively, recycled water could be stored in a pond at the GC, which would increase the conveyance period and minimize the size of transmission pipeline. The GC has access to CVP water which would be blended with recycled water to control salinity of the irrigation water. Conceptually, it is assumed that an existing pond would be used to achieve recycled water and CVP water blending. The blend supply would then be pumped into the existing irrigation system.

The existing San Juan Oaks GC was developed with a dual system to allow for recycled water connection at a future date. The future expansion would also include a dual system allowing for recycled water use. Therefore, retrofit costs are expected to be negligible.

An eight-inch (0.56 mgd flow) pipeline would be required to meet peak blend water supply over a 12-hour period. Figure 4-7 shows the transmission pipeline alignment (approximately 14,700 feet) from the Hollister Domestic WWTP to the San Juan Oaks GC. Annual recycled water use for this demand region is anticipated to be approximately 160 AF for a 500 mg/L TDS goal.

Figure 4-7: Pipeline Alignment from Hollister Domestic WWTP to San Juan Oaks GC

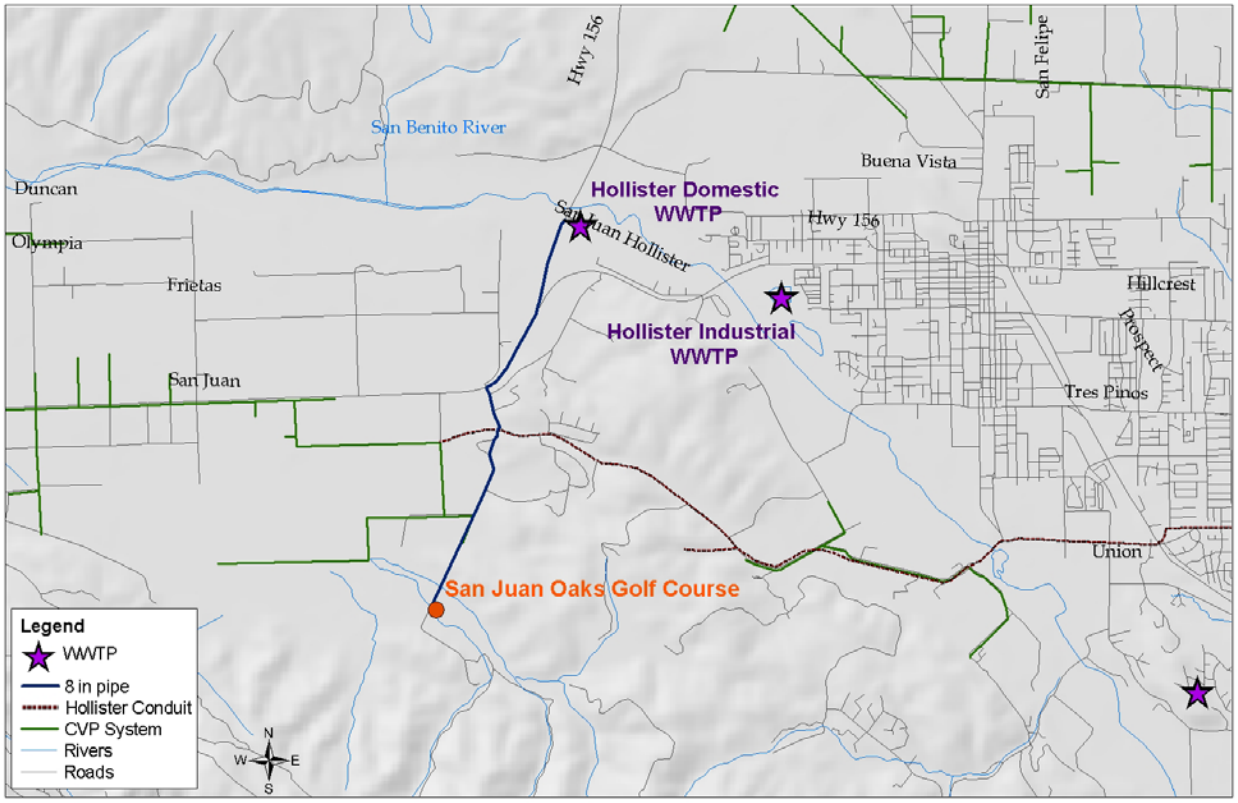


Table 4-30 summarizes the estimated cost for the transmission pipeline and pump station to convey recycled water to the San Juan Oaks GC. This pump station would include two 20 hp pumps (one duty and one standby pump). It is assumed that the San Juan Oaks Golf Course would pump blended supply from the pond using an existing irrigation pump station.

Table 4-30: Estimated Cost for Distribution to the San Juan Oaks GC

Project Elements	Estimated Cost
Pipelines	$590,000
Bore & Jack Crossings/Microtunneling – 150 ft Hwy 156 crossing	$20,000
Appurtenances	$60,000
Pump Station – (see text)	$80,000
Raw Construction Cost	**$750,000**
Construction Contingency	$230,000
Total Construction Cost	**$980,000**
Right of Way	$20,000
Engr, Legal, Admin, and Environmental	$240,000
Total Capital Cost	**$1,240,000**
Annualized Capital	$81,000
Annual O&M	$53,000
Total Annualized Cost	**$134,000**

Notes:
1) Annualized capital cost is based on a 30-year capital recovery period at 5% interest.
2) All cost estimates are rounded to nearest $10,000. Annual O&M costs are rounded to nearest $1,000.

4.5 Ultimate Service Area Preliminary Screening

The service areas described previously in this section were subjected to a preliminary screening process to identify those options that did not meet specified criteria. The criteria used in this level of evaluation reflect long-term goals set by the major stakeholders. Table 4-31 details the set of basic criteria used in this evaluation.

Table 4-31: Preliminary Screening Criteria

Criteria:
1) No negative groundwater impact
2) Maximize recycled water use (recycled water demand greater than 3,000 AF)
3) Be cost effective ($/AF is less than $500)
4) Meet salinity (TDS) goals established in Memorandum of Understanding
5) Provides equity/fairness for involved parties

Of the five chosen criteria, those relating to groundwater impacts, maximization of recycled water use and cost-effectiveness were identified as "pass-fail" criteria. If an identified project did not meet one of those criteria, it was eliminated from further consideration at this step, with no additional analysis. The projects analyzed at this stage did not include those that relied solely on recycled water from sources other than Hollister Domestic WWTP. The Ridgemark GC and the Northwest Area options, as described previously in this section, were therefore not reviewed and were eliminated from further consideration as an ultimate recycled water service area because they did not address the disposal needs of this major POTW. Table 4-32 reviews the actual analysis performed at this level of evaluation for the several projects considered.

Table 4-32: Preliminary Screening for Ultimate Service Areas

Project → / Criteria ↓	Entire San Juan Valley	Existing CVP Service Area	Freitas Road	San Juan Oaks	Urban Project	Wright Road – Buena Vista
Project Description	▪ Serve water to the entire San Juan Valley ▪ Includes a new pipeline in the Freitas Road Area ▪ Use Blue Valve system to distribute in existing CVP service area ▪ Blend at terminus of Hollister Conduit	▪ Use Blue Valve system to distribute in existing CVP service area ▪ Blend at terminus of Hollister Conduit	▪ New pipeline to distribute water in Freitas Road Area ▪ Blend recycled water at DWTP pump station	▪ Serve water from DWTP to San Juan Oaks GC ▪ Pipeline from terminus of Hollister Conduit to DWTP distribution pump station ▪ Blend at DWTP pump station ▪ Pipeline to San Juan Oaks from DWTP	▪ Serve water from DWTP through a dedicated pipeline system to the east into Hollister for parks, schools, etc… ▪ Pipeline from terminus of Hollister Conduit to DWTP distribution pump station ▪ Blend at DWTP pump station	▪ Serve water through a dedicated pipeline from DWTP northeast to the Wright Road – Buena Vista area ▪ Pipeline from terminus of Hollister Conduit to DWTP distribution pump station ▪ Blend at DWTP pump station
Potential Groundwater Impacts **(addresses Criterion 1)**	▪ Minimal on a basin scale ▪ May have local impacts ▪ Increases in wastewater flows will increase influent to groundwater basin ▪ Potential to reduce surface water imports in long-term ▪ Existing groundwater TDS level of 500-1,500 mg/L	▪ Minimal on a basin scale ▪ May have local impacts ▪ Increases in wastewater flows will increase influent to groundwater basin ▪ Potential to reduce surface water imports in long-term ▪ Existing groundwater TDS level of 500-1,500 mg/L	▪ Minimal on a basin scale (assuming no additional imported water is used for blending) ▪ May have local impacts ▪ Increases in wastewater flows will increase influent to groundwater basin – mitigation required ▪ Existing groundwater TDS level of >1,000 mg/L	▪ Minimal on a basin scale ▪ May have local impacts ▪ Existing groundwater TDS level of 400 mg/L	▪ May have local impacts ▪ Demand is widely spaced so cumulative impact may be minimal ▪ May decrease groundwater levels in the San Juan Valley since this is, in effect, an inter-basin water transfer ▪ Existing groundwater TDS level of 500-1,000 mg/L	▪ Major: Groundwater basin in the area has limited outflow capability ▪ Inflow of any additional water would cause significant groundwater level impacts. ▪ May decrease groundwater levels in the San Juan Valley since this is, in effect, an inter-basin water transfer ▪ Existing groundwater TDS level of 1,000->1,500 mg/L
Projected market[1] (without storage) **(addresses Criterion 2)**	▪ 7,850 acres ▪ 16,300 AFY total ▪ 4,250 AFY RW (assumes 1.2 AF/acre delivered)	▪ 5,960 acres ▪ 11,720 AFY total ▪ 4,040 AFY RW	▪ 1,890 acres[2] ▪ 3,330 AFY RW[2] – assume maximize delivered supply during irrigation months	▪ 45 holes of golf and housing development ▪ 750 AFY total ▪ 200 AFY RW	▪ 135 acres maximum ▪ 1,820 AFY maximum	▪ 890 acres ▪ 2,290
Annualized[3] and Unit[4] Distribution System Costs (addresses Criterion 3)	▪ $1,815,000 ▪ $430/AF	▪ $840,000 ▪ $210/AF	▪ $1,198,000 ▪ $360/AF	▪ $134,000 ▪ $670/AF	Typical urban projects are >$1,000/AF (Palo Alto RWQCP Distribution System Estimate)	▪ $657,000 ▪ $286/AF
Ability to meet salinity goals **(addresses Criterion 4)**	▪ As a whole, the San Juan Valley has a substantial existing blend supply ▪ A portion of the SJV does not have a dedicated blend supply and would need to use some of the exiting supply ▪ Would provide incidental blending with CVP water even after RW could be directly used	▪ This service area has an existing blend supply from CVP water ▪ Would provide incidental blending with CVP water even after RW could be directly used	▪ This service area would require a blend supply from elsewhere to meet salinity goals ▪ Alternatively, desalination of recycled water or water for blending would be necessary	▪ This service area has an existing blend supply from CVP water and high quality groundwater	▪ Some locations may have treated surface water supplies that could be used for blending ▪ Other locations may need to rely on local groundwater or additional surface water for blending	▪ This service area would require a blend supply from elsewhere to meet salinity goals
Equity considerations **(addresses Criterion 5)**	▪ This option would spread recycled water use over a large number of customers ▪ This would maintain delivered water quantities to the existing CVP system ▪ Some quality decreases would be seen in the water delivered to the existing CVP customers	▪ This option would spread recycled water use over a large number of customers ▪ This would maintain delivered water quantities to the existing CVP system ▪ Some quality decreases would be seen in the water delivered to the existing CVP customers ▪ No benefit to Freitas Road Area	▪ This option would concentrate recycled water use in one area ▪ The service area has no current delivered water system ▪ This option would maintain current salt loadings in the groundwater basin ▪ 100% of demand (long-term) could be served to this area while the rest of the SJV would only get 1.2 AF/acre (dependent on operational strategy)	▪ This option would only supply water to one golf course development	▪ This option would only supply recycled water to a small subset of the total urban demand	▪ This option would concentrate recycled water use in one area ▪ The service area has no current delivered water system
Preliminary Fatal Flaw Screening	▪ **VIABLE**	▪ **VIABLE** ◦ Regulatory issues ◦ Public response	▪ **VIABLE** ◦ Salinity control needed ◦ Public response	▪ **NOT VIABLE** ◦ Unit cost is too high to be an ultimate recycled water distribution project ◦ May be incorporated as a piece in another ultimate project	▪ **NOT VIABLE** ◦ Project is not cost effective ◦ May be incorporated as a piece in another ultimate project	▪ **NOT VIABLE** ◦ Negative groundwater impacts eliminate this as an ultimate project

Notes for Table 4-32:

1) Project market distribution quantities assume that no recycled water storage is available
2) Actual irrigated area and demand for Freitas Road project will depend on the near-term salinity management approach. The options under consideration provide a range of potential long-term recycled water demands
3) Annualized cost is based on 5% interest over a 30 year recovery period for costs developed in the feasibility study
4) Unit cost is based on total annualized recycled water project costs and recycled water uses based on a monthly market analysis during the irrigation season (March – November) assuming that there is no storage for recycled water and that recycled water can be used directly.

4.6 Supply Maximization

Demand for recycled water is seasonal, as the primary use is for crop and landscape irrigation. Beneficial use of recycled water can be maximized by storing recycled water during low demand period for use during dry periods. Potential storage options considered for the feasibility study include surface storage and groundwater storage.

A surface reservoir option could be implemented to collect treated recycled water during months with low demand providing supply for the high demand periods. For a surface reservoir, land would need to be acquired and developed for this purpose, increasing the cost of the project. This storage option would require a piping and pumping system to fill and drain the storage unit. It should be noted that some RWQCBs have begun to limit TDS levels for surface discharges, adding a future cost risk to the project as advanced salinity control measures, such as RO and brine disposal, may be needed to meet these potential standards.

An Aquifer Storage and Recovery (ASR) project could be implemented to store recycled water in the groundwater basin. ASR could include injection and extraction wells or a percolation pond and groundwater pumping. An ASR project probably would need to meet DHS Groundwater Recharge Reuse Draft Regulations that would likely require RO treatment. This would increase the cost of an ASR project and would also require brine disposal.

Development of a surface storage project or ASR project could also support management of winter effluent flow. By implementing a recycled water project, wastewater disposal capacity of the existing percolation ponds at the WWTPs may be increased. It is theorized that summer time use of recycled water would reduce groundwater levels near the percolation ponds resulting in high percolation rate during low recycled water use periods. Summer recycled water use would also provide an annual maintenance opportunity for the percolation ponds. However, it is expected that additional wet season effluent management uses are minimal and could be accommodated by recycled water seasonal storage.

Section 5

Conceptual Service Area Alternatives

5 Conceptual Service Area Alternatives

The three options that were identified in Section 4 as passing the preliminary screening were analyzed in more detail to determine their suitability as an ultimate service area for the recycled water project. In addition, a No Project alternative is discussed. Title 22 treatment has been planned and designed by the City of Hollister and has been documented through a Report of Waste Discharge and a Preliminary Design Report (Hydroscience, May 2004). The design of this facility is proceeding using a Membrane Bio Reactor (MBR) treatment process followed by chlorine contact basins to produce Title 22 compliant water. This treatment system is designed with a 5.0 mgd capacity with expansion capability in the future. The alternatives presented in this Section are the options that were identified in Section 4 as having potential for being an ultimate service area for a water reclamation project. The estimated costs of the alternatives were based on the estimated unit costs documented previously. Table 5-1 lists the basic potential alternatives that were considered for the Northern SBC Regional Recycled Water Project.

Table 5-1: Alternatives Developed for Northern San Benito County Recycled Water Project

Alternative	Description
No Recycled Water Project	Although no specific recycled water project is implemented, ongoing projects and existing treatment options would be continued. Future wastewater disposal and treatment needs were assessed to establish costs associated with this alternative.
Distribution to the Entire San Juan Valley	Utilizes the existing CVP distribution system in the San Juan Valley as well as a new distribution system in the Freitas Road Area to supply recycled water to the whole San Juan Valley region.
Distribution to the Existing San Juan Valley CVP Service Area	Utilizes the existing CVP distribution system in the San Juan Valley to supply recycled water to the current CVP customers
Distribution to the Freitas Road Area	Builds a new distribution system in the Freitas Road Area to provide recycled water to customers who currently rely solely on groundwater for irrigation

Except for the No Project alternative, the other three distribution options would rely on Title 22 water treated at the Hollister DWTP. It should be recognized that a future connection from the Ridgemark Wastewater Treatment facilities is being investigated and would provide additional wastewater for reclamation and that the San Juan Bautista WWTP currently produces recycled water compliant with Title 22 and could be brought on-line as a potential source in the future. The vegetable processors as a source for recycled water would need more detailed evaluation to determine their effectiveness as sources in the proposed distribution scenarios.

Estimated costs can be referenced to last quarter 2003 Construction Cost Index (CCI) values. Annualized capital costs were calculated assuming a recovery period of 30 years and an interest rate of 5%. A construction contingency of 30% and engineering, legal, administrative, and environmental factor of 25% were applied to the construction cost estimates to determine estimated capital costs. Environmental constraints, specific retrofit needs, geotechnical considerations, and other factors have not been evaluated or taken into consideration. Detailed cost estimates for the alternatives can be found in Attachment D.

5.1 Alternative 1 - No Recycled Water Project

The No Project alternative is considered the baseline project and is used to assess the future treatment and disposal options likely undertaken by a wastewater discharger if a recycled water project were not implemented. The major focus of the No Project alternative is the disposal requirements at the Hollister DWTP. The DWTP is in the process of implementing a wastewater treatment system improvement

project and in conjunction with that effort are analyzing a variety of disposal options. The disposal options that are being considered are:

- Continue with current percolation/storage operations
- 100% of flow to percolation – new ponds
- 100% of flow to sprayfields – with a reservoir for storage
- 100% of flow to sprayfields – with a storage tank
- Combination of sprayfields and irrigation
- Combination of sprayfields and percolation
- Constructed wetlands
- Construction water
- Deep ground injection
- RO and brine injection
- Export to water poor areas
- Inject into Pajaro pipeline
- Regional recycling project
- San Benito River discharge
- Ocean outfall discharge
- Storage tanks
- Evaporation ponds

Depending on the option chosen, the costs for these projects range from $5 million to over $1 billion for 5 MGD capacity. The City of Hollister, SBCWD and San Benito County are jointly evaluating these options to determine the option that best meets the goals of all three agencies. For the purposes of this Feasibility Study, it is assumed that the new treatment facilities are constructed and additional percolation ponds are acquired and constructed to handle flows from the Hollister Domestic and Industrial WWTPs for the 2022 flow scenario.

Specific assumptions and details for this alternative are as follows:

- Assume new percolation ponds would be required at the Hollister facility to meet future disposal requirements. Assume a land requirement of 224 acres/mgd, at a cost of $8,500/acre including development. Discharge of wastewater to the San Benito or Pajaro River is another potential option, however, due to flood and permitting issues, discharge may not be allowed.
- The current combined disposal capacity of the Hollister WWTPs is 5.1 mgd. Future flow (2022) at the Hollister Domestic and Industrial WWTPs is estimated to be 3.7 mgd and 4.5 mgd, respectively. This would require 3.1 mgd of additional disposal capacity.
- Treatment provided by the proposed MBR facility is sufficient to allow for continued percolation of treated wastewater into the groundwater basin.
- A future regulatory driver of 500 mg/L TDS for land application and surface discharge is expected to mitigate salinity loading within the basin. This type of regulation has been adopted by some RWQCBs and could become a standard discharge limit in the future. Therefore reverse osmosis facilities would be needed to treat a portion of the flow to meet this requirement based on effluent salinity (assumed to be 1200 mg/L). Brine disposal will consist of evaporation ponds (25 acres land purchase/mgd treated) and landfill. This is a likely potential cost risk in the future for continued disposal through land application

The cost implications associated with the no project alternative can be used to assess the benefit value of a recycled water project. For example, if wastewater disposal needs are not met by a recycled water

project, an alternative disposal project would need to be implemented to meet needs (i.e. construction of additional disposal ponds).

Table 5-2 presents a cost estimate for the No Recycled Water Project Alternative for the Hollister WWTPs. Cost estimates were based on the ability to treat and dispose of existing flow levels and the assumption of a low salinity regulatory driver. The absence of this driver would significantly reduce the cost of future wastewater treatment and disposal as RO treatment would not be required. Treatment unit costs are discussed in Section 4.2.

Table 5-2: Estimated Cost of No Recycled Water Project Alternative

Project Elements	Estimated Cost with RO Treatment
Disposal Capacity Upgrades (3.1 MGD)	$5,900,000
Microfiltration (1.9 MGD)	$3,300,000
Reverse Osmosis (1.6 MGD)	$4,800,000
Brine Disposal (based on 1.6 MGD RO)	$5,840,000
Raw Construction Costs	**$19,840,000**
Construction Contingency (30%)	$6,000,000
Total Construction Cost	**$25,840,000**
Engr, Legal, Admin, and Environmental (25%)	$6,400,000
Total Capital Cost	**$32,340,000**
Annualized Capital	$2,104,000
Annual O&M	$778,000
Total Annualized Cost	**$2,882,000**

Notes:
1) Annualized costs are based on a 30-year recovery period at 5% interest.
2) Costs are rounded to the nearest $10,000. Annualized capital and O&M costs are rounded to the nearest $1,000.

The issues associated with the No Project Alternative are described below:

- Additional land would be needed for wastewater disposal.
- Effective management of high salinity percolated water would not be achieved without significant additional expense.
- A valuable resource would be undeveloped.
- Water supply reliability issues are not addressed.

It should be noted that to some extent wastewater can be beneficially used under this alternative. Percolation of wastewater (the primary disposal option for the WWTPs) and groundwater pumping can result in indirect use of effluent.

5.2 Alternative 2 – Entire San Juan Valley

This alternative would provide service to a combination of service areas described in Section 4, the existing CVP Area and the Freitas Road Area. Annual demand in this area is approximately 16,300 AFY over approximately 7,850 acres. Assuming that the recycled water will be delivered at 1.2 AF/acre, and will use the existing CVP pipeline system, the existing pipeline capacity of 45 cfs needs to be taken into account. This flow rate for the existing CVP service area results in a peak unit delivered water capacity of 3.39 gpm/acre. This value is used for peak demand calculations instead of using the value developed in Chapter 3. Table 5-3 presents preliminary design criteria for service to this service area. During the peak month, the demand for recycled water would be greater than available supply.

Table 5-3: Alternative 2 Design Criteria

Design Criteria	Salinity Goal TDS = 500 mg/L
Average Day Peak Month Demand (mgd)	31.7
Delivered Water Service (AF/acre)	1.2
Peak Delivered Water Demand (gpm/acre)	3.39
Peak Recycled Water Demand (mgd, @ 1,200 mg/L TDS)	8.5
Peak Recycled Water Demand (mgd, @ 700 mg/L TDS)	19.1
Annual Yield (AFY, @ 1,200 mg/L TDS)	2,031
Annual Yield (AFY, @ 700 mg/L TDS)	4,700

Distribution costs for this alternative are summarized in Table 5-4.

Table 5-4: Alternative 2 Distribution Costs

Element	Capital Cost	Annualized Capital Cost	Annual O&M Cost	Total Annualized Cost
Distribution to the Existing CVP Area	$6,790,000	$440,000	$400,000	$840,000
Distribution to the Freitas Road Area	$10,040,000	$653,000	$322,000	$975,000
Total Distribution Costs	**$16,820,000**	**$1,093,000**	**$722,000**	**$1,815,000**

Note:
1) All cost estimates are rounded to nearest $10,000. Annual O&M costs are rounded to nearest $1,000.
2) Freitas Road costs are modified from Section 4 to reflect change in pipe size based on 1.2 AF/acre allocation

5.3 Alternative 3 – Existing CVP Service Area

This alternative would provide service to the existing CVP Area. Annual demand in this area is approximately 11,720 AFY over approximately 5,960 acres. As for Alternative 2, the recycled water will be delivered at 1.2 AF/acre, and will use the existing CVP pipeline system, so a peak unit delivered water capacity of 3.39 gpm/acre is used. Table 5-5 presents preliminary design criteria for service to this service area. During the peak month, the demand for recycled water would be greater than available supply.

Table 5-5: Alternative 3 Design Criteria

Design Criteria	Salinity Goal TDS = 500 mg/L
Average Day Peak Month Demand (mgd)	22.5
Delivered Water Service (AF/acre)	1.2
Peak Delivered Water Demand (gpm/acre)	3.39
Peak Recycled Water Demand (mgd, @ 1,200 mg/L TDS)	6.5
Peak Recycled Water Demand (mgd, @ 700 mg/L TDS)	14.5
Annual Yield (AFY, @ 1,200 mg/L TDS)	1,590
Annual Yield (AFY, @ 700 mg/L TDS)	3,575

Distribution costs for this alternative are summarized in Table 5-6.

Table 5-6: Alternative 3 Distribution Costs

Element	Capital Cost	Annualized Capital Cost	Annual O&M Cost	Total Annualized Cost
Distribution to the Existing CVP Area	$6,790,000	$440,000	$400,000	$840,000

Note:
1) All cost estimates are rounded to nearest $10,000. Annual O&M costs are rounded to nearest $1,000.

5.4 Alternative 4 – Freitas Road Area

This alternative would provide service to the Freitas Road Area. Annual demand in this area is approximately 4,600 AFY over approximately 1,890 acres. Since there is currently no delivered water in this area, it is assumed that water will supply 100% of the irrigation demand in the area. Table 5-7 presents preliminary design criteria for service to this service area. During the peak month, the demand for recycled water would be greater than available supply.

Table 5-7: Alternative 4 Design Criteria

Design Criteria	Salinity Goal TDS = 700 mg/L
Average Day Peak Month Demand (mgd)	9.2
Delivered Water Service (% of total demand)	100%
Peak Recycled Water Demand (mgd, @ 1,200 mg/L TDS)	7.2
Peak Recycled Water Demand (mgd, @ 700 mg/L TDS)	16.3
Annual Yield (AFY, @ 1,200 mg/L TDS)	2,030
Annual Yield (AFY, @ 700 mg/L TDS)	4,600

Distribution costs for this alternative are summarized in Table 5-8.

Table 5-8: Alternative 4 Distribution Costs

Element	Capital Cost	Annualized Capital Cost	Annual O&M Cost	Total Annualized Cost
Distribution to the Freitas Road Area	$13,270,000	$863,000	$335,000	$1,198,000

Note:
1) All cost estimates are rounded to nearest $10,000. Annual O&M costs are rounded to nearest $1,000.

5.5 Recycled Water Project Benefits

The benefits of the alternatives must be assessed before a recommended alternative can be selected. This section presents an overall description of the benefits associated with the recycled water alternatives. Section 2 outlined an array of water supply needs, wastewater needs, and regional challenges faced by public agencies in SBC. These challenges are directly related to the benefits of the alternatives and can be focused in the following resource areas:

- Water Supply Benefits
- Water Quality Benefits
- Wastewater Benefits
- Groundwater Level Benefits
- Regionalization Benefits

Table 5-9 summarizes some of the benefits included in each category. The following sections further detail these benefits as they relate to SBC and the municipalities.

Table 5-9: Potential Benefits of Recycled Water in San Benito County

Benefit	Description
Water Supply Benefits	Benefits that enhance the quantity of the region's water supply.
Augments Annual Supply (Ag/Urban)	Provides a consistent supplemental usable local water supply for agriculture and M&I.
Supply Reliability (Ag/Urban)	Complements, augments imported CVP supply in improving the region's agricultural irrigation and M&I supply reliability, especially during dry periods.
Supply Flexibility	Complements District activities to manage the quality and groundwater levels in the local groundwater basins.
Water Quality Benefits	Benefits that enhance the quality of the region's water supply.
Improved Quality (Ag/Urban)	Improves the region's Ag and M&I water supply quality by either reducing detrimental constituent loadings (nitrate sodium, chloride, boron, etc.)
Reduced Water Softener Use	Helps prompt reduction in use of urban onsite water softener regeneration.
Salt Management	Aids in reducing the overall salt balance in the basin, or aligns with/supports long-term salt management strategy such as salt extraction from recycled or groundwater and brine export.
Wastewater Benefits	Benefits that support WWTPs in the region to meet WDR and NPDES permits.
Effluent Water Quality Objectives	Aids WWTP in meeting water quality or capacity requirements in WDR or NPDES Permit.
Wet Weather Discharge	Aids WWTP in meeting wet-weather capacity requirement or discharge limitation in WDR or NPDES Permit.
Avoided Cost of Advanced Treatment	Provides alternative disposal mechanism that reduces the need for RO treatment that is envisioned to be required in the future.
Groundwater Level Benefits	Benefits to the management of localized high groundwater levels consistent with GMP Update.
Reduced Crop Impacts	Reduces high groundwater in agricultural areas where high groundwater is impacting crop growth and production.
Regionalization Benefits	Overall benefits to the participating stakeholders throughout the region.
Cost-Sharing Opportunities	Wastewater conveyance would allow SSCWD to combine operations, maintenance and administrative tasks with the Hollister facilities.
Economy of Scale Benefits	Combined tertiary treatment of Hollister and SSCWD wastewater may reduce the capital and annual costs of treatment.

5.5.1 Water Supply Benefits

Development of recycled water can provide four types of water supply benefits. These include:

- Avoided Costs of Water Supply Capacity Upgrades: recycled water use is a new water use in SBC that would reduce the use of existing water supplies. In addition to the financial benefit of using the offset water supply, there is an avoided cost associated with the need to increase future water supply. Future water supply upgrades are expected in the future as development and population increase in San Benito County.
- Water supply augmentation: recycled water is a new supply in the SBC. This augmented supply can be used to support a range of non-potable water uses by municipal/industrial and agricultural uses.

- Water supply reliability: recycled water supply is drought tolerant and hydrologically independent, adding overall reliability and value to the water supply.
- Water supply flexibility: a developed recycled water supply provides the flexibility to deliver water supply consistent with overall user needs. In addition, use of recycled water within the County adds an additional element of flexibility to SBCWD's water banking strategy.

The avoided cost of expanding the regions water supply capacity should be considered when assessing the value of a recycled water project. A benefit value related to new potable water supply treatment would be realized if recycled water were used to offset potable water use in the Cities' service area. A benefit associated with new groundwater wells or purchase of additional import water would be realized if recycled water offsets agricultural water supply.

Water supply reliability is a significant issue for the region as surface water supplies that are hydrologically dependent make up a significant portion of the water supply. Groundwater supply is also hydrologically dependent as groundwater recharge is reduced during drought years. The benefit of reliability was quantified assuming one drought year every 5 years. The value of water during these drought conditions was assumed $150 per AF (two times $75 per AF). With the drought return period of 5 years the annual reliability benefit value would be $30 per AF.

5.5.2 Water Quality Benefits

Development of a recycled water supply could provide two types of water quality benefits. These include:

- Reduced groundwater degradation from nitrates: recycled water used for irrigation is supplied over relatively large areas and applied at agronomic rates, which typically assures that vegetation will provide adequate uptake of nitrogen. This reduces the potential for groundwater degradation when wastewater is percolated in concentrated areas.
- Reduced groundwater degradation from salinity: development of a recycled water supply of adequate quality can provide another driver for control of water softeners that discharge to the wastewater stream.

Current wastewater disposal practices are thought to be impacting localized areas of the groundwater basin with nitrogen and salt. Protection of the groundwater basin will have long term water benefits for the region as groundwater is expected to be a major source of supply during drought years. This benefit is quantified as half of the cost of construction of reverse osmosis facilities, including microfiltration and brine management, for the wastewater stream.

5.5.3 Wastewater Disposal Benefits

Implementation of a recycled water project would reduce the need for future disposal capacity upgrades at the wastewater treatment plants. If a significant portion of the wastewater flow is reclaimed, then the existing disposal capacity at the wastewater treatment plant would be sufficient to meet future capacity needs. Under the no project alternative, disposal capacity upgrades would include construction of tertiary and disinfection facilities and purchase of additional land to facilitate land disposal. The avoided cost of these facilities would be a significant financial benefit. The no project alternative estimated cost was used to develop a unit benefit value for the avoided cost of wastewater disposal. It is recognized that tertiary and disinfection facilities would also be constructed under a recycled water project. Therefore, the recycled water costs and disposal benefit for these facilities would cancel each other out.

Potential future regulations associated with protection of the groundwater basin could also increase the benefit value associated with the avoided cost of wastewater disposal. Salinity and emerging pollutants

may require wastewater to the demineralized with a reverse osmosis (RO) process to protect beneficial use and human health. An estimated cost for the required increase in disposal capacity was developed and is used to evaluate the benefit value of a recycled water project.

5.5.4 Groundwater Level Benefits

The reduction in wastewater disposal through the percolation ponds would also alleviate high groundwater levels near the ponds. This would reduce groundwater level impacts to agricultural activities. High groundwater results in drainage issues and can impact crop growth and production. The benefit value of groundwater level management is difficult to quantify. One potential strategy would be to estimate the damages to crops or loss production time. Alternatively a project that mitigates the high groundwater levels could be use to assess the benefit. In either case, additional data is needed to assess the benefit value.

5.6 Alternative Benefit Assessment

Water recycling projects can provide an array of benefits within each of the above mentioned benefit areas. Benefits should be considered in conjunction with cost to identify a recommended alternative. In addition to assisting in determining a Recommended Alternative, benefit are also used to determine/define cost share and associated rates. The extent of the benefits can be related to the volume of recycled water that would be used on an annual basis. Table 5-10 details the assumptions used in the comparison of the alternatives.

Table 5-10: Benefit-Cost Value Assumptions

Benefit	Benefit Value per AF	Comment
Recycled Water Supply	$75 Ag. $150 M&I	This benefit value is the assumed estimated rate that could be charged for recycled water. This value is based on current CVP water rate for SBCWD customers.
Avoided Cost of Disposal Capacity Expansion	$300	This benefit value was estimated based on the no project alternative. Under the no project alternative additional land disposal would be needed.
Avoided Cost of Water Supply Upgrade	$250	This benefit value can be estimated based on the cost of the next incremental source of water supply. The value would be high if desalination of groundwater represents the next increment of water for San Benito County. For this assessment, the benefit value was assumed to be $250.
Water Supply Reliability	$30	Reliability benefits are difficult to quantify and can vary depending on the sources of supply that are available. The reliability benefit value was developed assuming a dry year return period of 5 years. The value of recycled water during these dry years is assumed to be 2 times the agricultural CVP water rate of $75. This equates to an annual benefit of $30 per AF.
Water Quality Benefit	$300	Water quality benefits are associated with limiting the impact of wastewater disposal to the groundwater basin. Protection of the groundwater basin will allow for future beneficial use of the groundwater supply. The benefit value of the future water quality benefit is difficult to ascertain. However, for this evaluation it is assumed 1,000 AFY of water would be protected and available for future beneficial use. The unit value of this water was assumed to be $300 per AF (half the cost of RO treatment of percolated wastewater)
Groundwater Level Benefit	Total Benefit of $100,000 per year	Groundwater level benefits near the existing wastewater disposal sites may be realized. High groundwater can impact drainage of the agricultural lands near the WWTF. This may impact agricultural activities and crop production. For this evaluation it is assumed that 100 acres around the WWTP is impacted resulting in crop loss of $1000 per acre.

As stated previously (Section 5.7) distribution to the entire San Juan Valley shows the highest potential to meet project goals based on the potential for a large quantity of recycled water to be served to users and the equity it provides to the region. Table 5-11 details the range of quantitative benefits for the three distribution options evaluated in this section. The low benefit levels correspond to the case where RO treatment is not required for wastewater percolation into the groundwater basin and the high benefit levels correspond to a requirement for RO treatment on percolated wastewater.

Table 5-11: Summary of Potential Alternative Benefits

Project Benefit	Unit Value (per AF)	2 - SJV		3 - Ex CVP		4 - Freitas	
		Benefit Quantity (AFY)	Benefit Value	Benefit Quantity (AFY)	Benefit Value	Benefit Quantity (AFY)	Benefit Value
Recycled Water Cost Recovery Benefit	$75	4,700	$352,500	3,575	$268,125	2,030	$152,250
Avoided Cost of WW Disposal Capacity Upgrades	$300	4,700	$1,410,000	3,575	$1,072,500	2,030	$609,000
Avoided Cost of Water Supply Capacity Upgrades	$100	0	$0	0	$0	0	$0
Water Supply Reliability	$30	4,700	$141,000	3,575	$107,250	2,030	$60,900
Water Quality Benefit	$75	4,700	$1,410,000	3,575	$1,072,500	2,030	$609,000
Groundwater Level Benefit		NA	$100,000	NA	$100,000	NA	$100,000
Benefit per year			**$3,413,500**		**$2,620,375**		**$1,531,150**
Present Worth Benefit			**$52,473,862**		**$40,281,586**		**$23,537,528**

Notes:
1) NA = Not applicable

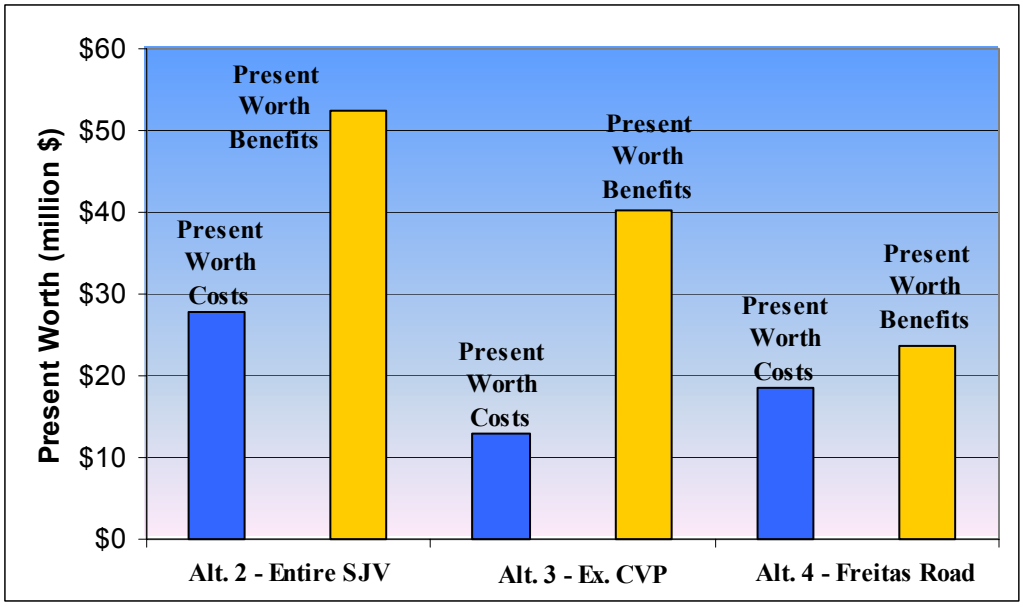
The benefit values in Table 5-11 were compared to the costs for the alternatives under consideration. The resultant costs for the three alternatives are shown in Table 5-12.

Table 5-12: Annualized Costs for Alternatives 2, 3 and 4

Alternative	2	3	4
Total Capital Cost	$16,820,000	$6,790,000	$13,270,000
Annual O&M Costs	$722,000	$400,000	$335,000
Present Worth O&M Costs (30 years at 5% interest)	$11,100,000	$6,149,000	$5,150,000
Total Present Worth Cost	**$27,924,000**	**$12,939,000**	**$18,420,000**

Figure 5-1 shows the present worth cost verses the present worth benefits for the various recycled water alternatives. The benefit for each of the alternatives is less than the estimated present worth cost. However, the estimated costs do not account for potential funding that is expected for a recycled water project (discussed further in Section 6).

Figure 5-1: Comparison of Present Worth Costs and Benefits for Alternative Projects



Within the accuracy of the benefit and cost estimates, the benefit-cost ratio indicates that any of these three recycled water projects are feasible. Additionally, the evaluation does not account for increased benefits from expansion of recycled water use associated with future enhanced wastewater quality. It should be noted that this analysis only represents a cursory benefit evaluation. The estimated costs and benefit values represent a conceptual planning level analysis with a number of assumptions.

Based on the figure above, Alternative 3 has a slightly higher benefit to cost ratio than does Alternative 2, however several non-quantifiable benefits are not included in the benefits evaluation. Some examples of these non-quantifiable benefits are equity considerations, ability of project to be phased, coordination with other projects in the Northern San Benito County Region and regulatory considerations. To address these criteria, a qualitative analysis was performed for the final evaluation of the ultimate service areas. Section 5.7 presents the methodology and results from this analysis.

5.7 Recommendation of Alternative

The three alternatives described in Section 4 and the above summaries were compared using a set of criteria similar to that used in the preliminary screening from Section 4 and restated in Table 5-13.

Table 5-13: Detailed Evaluation Criteria

Criteria:
1) No negative groundwater impact
2) Maximize recycled water use (recycled water demand greater than 3,000 AF)
3) Be cost effective ($/AF is less than $500)
4) Meet salinity (TDS) goals established in Memorandum of Understanding
5) Provides equity/fairness for involved parties

In the application of those criteria, the focus at this stage is on implementation. The two major considerations that were used to determine a recommended ultimate service area were:

1 – Maximization of recycled water use from all sources in the long-term, and,

2 – Provisions for equity in water quantity, quality and reliability

Table 5-14: Detailed Evaluation Ranking Symbols

Ranking Symbol	Meaning
●	Excellent
⊙	Average
○	Poor

Table 5-15 summarizes the detailed evaluation performed on the three potential ultimate service areas.

Table 5-15: Detailed Ultimate Service Area Evaluation

Project → / Criteria ↓	Entire San Juan Valley		Existing CVP Service Area		Freitas Road	
Project Description	NA	▪ Serve water to the entire San Juan Valley ▪ Includes a new distribution system in the Freitas Road Area ▪ Use Blue Valve system to distribute in existing CVP service area ▪ Blend near terminus of Hollister Conduit	NA	▪ Use Blue Valve system to distribute in existing CVP service area ▪ Blend near terminus of Hollister Conduit	NA	▪ New distribution system in Freitas Road Area ▪ Blend recycled water at DWTP pump station
Potential Groundwater Impacts **(addresses Criterion 1)**	●	▪ Minimal on a basin scale ▪ Increases in wastewater flows will increase influent to groundwater basin – mitigation required ▪ Potential to reduce surface water imports in long-term ▪ Existing groundwater TDS level of 500-1,500 mg/L	●	▪ Minimal on a basin scale ▪ Increases in wastewater flows will increase influent to groundwater basin – mitigation required ▪ Potential to reduce surface water imports in long-term ▪ Existing groundwater TDS level of 500-1,500 mg/L	⊙	▪ Minimal on a basin scale (assuming no additional imported water is used for blending) ▪ May have local impacts ▪ Increases in wastewater flows will increase influent to groundwater basin – mitigation required ▪ Existing groundwater TDS level of >1,000 mg/L
Projected market[1] (without storage) **(addresses Criterion 2)**	●	▪ 7,850 acres ▪ 16,300 AFY total ▪ 4,250 AFY RW (assumes 1.2 AF/acre delivered)	⊙	▪ 5,960 acres ▪ 11,720 AFY total ▪ 4,040 AFY RW (assumed 1.2 AF/acre delivered)	⊙	▪ 1,890 acres[2] ▪ 4,600 AFY total ▪ 3,330 AFY RW[2] – assume 100% delivered supply during irrigation months
Projected recycled water demand[3] (with storage) **(Addresses Criterion 2)**	●	▪ Up to 4,140AFY (near-term) ◦ Salinity limited ◦ Supply, distribution system limited ▪ 9,410 AFY (long-term) ◦ Supply, distribution system limited	⊙	▪ Up to 3,150 AFY (near-term) ◦ Salinity limited ◦ Supply, distribution system limited ▪ 7,150 AFY (long-term) ◦ Supply, distribution system limited	⊙	▪ Dependent on salinity control method (near-term) ▪ Up to 4,600 AFY (long-term, for supply of 100% of demand)
Annualized[4] and Unit[5] Distribution System Costs **(addresses Criterion 3)**	○	▪ $1,815,000 ▪ $430/AF ◦ This is a supply limited scenario, with additional wastewater flows, more recycled water could be served (with no additional infrastructure)	●	▪ $840,000 ▪ $210/AF	⊙	▪ $1,198,000 ▪ $360/AF
Benefit-Cost Ratio	⊙	▪ 1.9	●	▪ 3.1	○	▪ 1.3
Ability to meet salinity goals **(addresses Criterion 4)**	⊙	▪ The San Juan Valley has an existing CVP supply for blending ▪ A portion of the SJV does not have an allocated blend supply and would need to use some of the exiting CVP supply ▪ In the long-term recycled water could be served directly as recycled water quality improves	●	▪ This service area has an existing blend supply from CVP water ▪ In the long-term recycled water could be served directly as recycled water quality improves	○	▪ This service area would require a blend supply from elsewhere to meet salinity goals ▪ Alternatively, advanced treatment would be needed ▪ In the long-term recycled water could be served directly as recycled water quality improves
Equity considerations **(addresses Criterion 5)**	●	▪ This option would spread recycled water use over a large number of customers ▪ This would maintain delivered water quantities to the existing CVP system ▪ Some quality decreases would be seen in the water delivered to the existing CVP customers	⊙	▪ This option would spread recycled water use over a large number of customers ▪ This would maintain delivered water quantities to the existing CVP system ▪ Some quality decreases would be seen in the water delivered to the existing CVP customers ▪ No benefit to Freitas Road Area	⊙	▪ This option would concentrate recycled water use in one area ▪ The service area has no current delivered water system ▪ This option would maintain current salt loadings in the groundwater basin ▪ 100% of demand would be served to this area while the rest of the SJV would only get 1.2 AF/acre
Projected recycled water supply scenario (near-term) **(Addresses Criterion 5)**	⊙	▪ Near-term project is not yet defined	⊙	▪ Provide a portion of the total irrigation demand to the Blue Valve system and maintain the delivered water quantity at 1.2 AF/acre	●	▪ Option 1: Serve 100% of irrigation demand to a portion of the service area ▪ Option 2: Serve a portion of the irrigation demand, based on acreage, to the entire service area
Projected recycled water supply scenario (long-term) **(Addresses Criterion 5)**	●	▪ Serve at least 1.2 AF/acre of blended water to the whole San Juan Valley ▪ This would allow some level of CVP water use to be offset to mitigate groundwater impacts from future increases in wastewater flows	⊙	▪ Provide all recycled water flow to system, to maintain a minimum of 1.2 AF/acre of delivered water while decreasing CVP use in SJV	●	▪ If Option 1 (above) is chosen: Continue to serve 100% of recycled water to area from initial phase and gradually move rest of service area to 100% deliveries as supply increases ▪ If Option 2 (above) is chosen: As recycled water supplies increase, continue to increase allocation per acre until 100% of demand is supplied via RW

Regulatory complications	○	▪ May need air gap, or other DHS approved backflow prevention, at the terminus of the Hollister Conduit. ▪ An air gap would require a large distribution pump station to re-pump CVP water	○	▪ May need air gap, or other DHS approved backflow prevention, at the terminus of the Hollister Conduit. ▪ An air gap would require a large distribution pump station to re-pump CVP water	o	▪ Typical Title 22 implementation ▪ This alternative would include an air gap at the DWTP, if blending with CVP water is the salinity control strategy
Potential Public Response **(addresses Criterion 7)**	o	▪ Customers in the existing CVP service area may be opposed to having the quality of their delivered water decreased by adding recycled water ▪ Customers in the Freitas Road area are expected to be supportive of a delivered water supply	○	▪ Customers in the existing CVP service area may be opposed to having the quality of their delivered water decreased by adding recycled water ▪ Growers in the Freitas Road Area may be opposed to the project as they are not included	o	▪ Customers in the Freitas Road area are expected to be supportive to the receipt of delivered water ▪ Potential Freitas Road customers may not want to be singled out as having to take delivered recycled water for irrigation ▪ Existing CVP customers may want the added reliability of a delivered recycled water supply
Interaction with DWTP upgrade project **(Addresses Criterion 8)**	●	▪ May provide alternatives for seasonal storage/wet-weather storage of effluent in the Freitas Road Area ▪ Service area has demand that could serve as a primary disposal method for Hollister DWTP	o	▪ Service area has demand that could serve as a primary disposal method for Hollister DWTP	o	▪ May provide alternatives for seasonal storage/wet-weather storage of effluent ▪ Could provide a large portion of the disposal needs for the Hollister DWTP
Interaction with San Juan Bautista CVP water supply project **(Addresses Criterion 8)**	o	▪ Would require a CVP extension pipe from the terminus of the Hollister Conduit to the proposed location of the surface water treatment facility or, ▪ Would require conversion of the plans to construct a groundwater treatment facility as opposed to a surface water treatment facility ▪ If the existing CVP system is not part of the initial phase of implementation for this project, a shorter CVP pipe could be built to supply that facility in the near-term and convert it into a groundwater facility in the long-term	○	▪ Would require a CVP extension pipe from the terminus of the Hollister Conduit to the proposed location of the surface water treatment facility or, ▪ Would require conversion of the plans to construct a groundwater treatment facility as opposed to a surface water treatment facility	●	▪ Minimal impact on implementation of CVP surface water treatment facility at San Juan Bautista
Ultimate Service Area Evaluation	●	▪ Recommended Ultimate Service Area ◦ Maximizes potential recycled water demand ◦ Provides equitable quality, quantity, and reliability of delivered water ◦ Phasing approach could mitigate need to provide alternatives for City of San Juan Bautista water supply and need to address regulatory issues	o	▪ Non-Preferred Ultimate Service Area ◦ Immediate need to address regulatory issues ◦ Immediate need to address City of San Juan Bautista water supply ◦ Large potential demand ◦ Does not provide equity in quality, quantity, and reliability of delivered water (Freitas Road excluded)	o	▪ Non-Preferred Ultimate Service Area ◦ Does not have sufficient demand to meet 5.0 mgd annual recycled water volumes (alternative salinity management strategies may increase the potential ultimate demand) ◦ Does not provide equity in quality, quantity, and reliability of delivered water (Freitas Road get all the recycled water) ◦ May not address desired regional aspect of project

Notes for Table 5-15:

1) Project market distribution quantities assume that no recycled water storage is available
2) Actual irrigated area and demand for Freitas Road project will depend on the near-term salinity management approach
3) Recycled water demand quantities assume that ample storage is available to capture all wastewater flow
4) Annualized cost is based on 5% interest over a 30 year recovery period for costs developed in the Feasibility Study
5) Unit cost is based on total annualized recycled water project costs and recycled water uses based on a monthly market analysis during the irrigation season (March – November) assuming that wastewater flows average 5.0 MGD, there is no storage for recycled water and that recycled water can be used directly.

The results from the detailed ultimate service area analysis identify the Entire San Juan Valley as the recommended ultimate service area. This service area was chosen over the Existing CVP Service Area and the Freitas Road Area due to its large demand, providing ample opportunity for use of all potential recycled water supplies, and the delivered water equity that is provided to the entire valley. Due to several factors, this ultimate project is recommended to be implemented in a phased approach. The specific implementation plan is described in more detail in Section 6.

Section 6

Recommended Alternative

6 Recommended Alternative

This section identifies the Recommended Alternative for the San Benito County Regional Water Recycling Project. The Recommended Alternative is generally the Regional Water Recycling Project at the Hollister Domestic WWTP with service to the entire San Juan Valley Area. The Recommended Alternative was selected based on associated benefits, implementability, and meeting project goals and objectives. The Recommended Alternative also enables use of recycled water from the San Juan Bautista WWTP, Natural Selections, and Pride of San Juan and the Ridgemark WWTPs as demand in the distribution system increases.

A two phased approach for implementation of the overall recommended recycled water project was developed recognizing that the water and wastewater setting in San Benito County is expected to change in the future as projects identified in the GMP Update are implemented and wastewater flows increase. The Phase I project considers the near term wastewater and disposal needs of the City of Hollister and SSCWD and the available opportunity to use recycled water. The Phase 1 project also considers the existing wastewater quality and recognizes that only a limited quantity of recycled water can be used in the near-term. The Phase II project recognizes that recycled water salinity levels will be lower in the future which would allow larger volumes of recycled water to be beneficially used.

Evaluation of potential projects for the Phase I and Phase II steps was guided by a set of several criteria that were identified by SBCWD and other major stakeholders as key to the choice of projects. At this stage in the evaluation of the project, the focus was on implementation. Table 6-1 identifies the criteria used in the phasing evaluation.

Table 6-1: Phasing Evaluation Criteria

Criteria:	
1)	No negative groundwater impact
2)	Maximize recycled water use (greater than 3,000 AFY)
3)	Be cost effective ($/AF is less than $500)
4)	Meet salinity (TDS) goals from MOU
5)	Provides equity/fairness for involved parties
6)	Project will be acceptable to regulatory agencies
7)	Project will be acceptable to public
8)	Project coordinates with other existing and planned water & wastewater projects in San Benito County

Due to the choice of ultimate service area, there are two obvious phases that would combine to form the ultimate project. The Existing CVP Service Area and the Freitas Road Area make up the entire ultimate service area and would therefore work well as phases of the project. Both options were scored using the symbols in Table 6-2.

Table 6-2: Phasing Evaluation Ranking Symbols

Ranking Symbol	Meaning
●	Excellent
⊙	Average
○	Poor

Table 6-3 details the evaluation of the Phase I option based on the criteria in Table 6-1.

Table 6-3: Recycled Water Project Phasing Evaluation

Project → / Criteria ↓	Existing CVP Service Area		Freitas Road	
Project Description	NA	▪ Use Blue Valve system to distribute in existing CVP service area ▪ Blend near terminus of Hollister Conduit	NA	▪ New distribution system in Freitas Road Area ▪ Blend recycled water at DWTP pump station
Potential Groundwater Impacts **(addresses Criterion 1)**	⊙	▪ Minimal on a basin scale ▪ May have local impacts ▪ Increases in wastewater flows will increase influent to groundwater basin – mitigation required ▪ Potential to reduce surface water imports in long-term ▪ Existing groundwater TDS level of 500-1,500 mg/L	⊙	▪ Minimal on a basin scale (assuming no additional imported water is used for blending) ▪ May have local impacts ▪ Increases in wastewater flows will increase influent to groundwater basin – mitigation required ▪ Existing groundwater TDS level of >1,000 mg/L
Projected market[1] (without storage) **(addresses Criterion 2)**	●	▪ 5,956 acres ▪ 11,741 AFY total irrigation demand ▪ 7,147 AFY delivered water ▪ 2,200 AFY @1,200 mg/L TDS (salinity limited) ▪ 2,470 AFY @700 mg/L TDS (supply limited)	⊙	▪ 1,886 acres[2] ▪ 4,602 AFY total ▪ Assume 2,263 AFY delivered (1.2 AF/acre) ▪ 1,000 AFY @ 1,200 mg/L TDS (salinity limited) ▪ 1,952 AFY @ 700 mg/L TDS (demand limited)
Projected recycled water demand[3] (with storage) **(Addresses Criterion 2)**	●	▪ Up to 3,179 AFY (@1,200 mg/L TDS) ◦ Salinity, supply limited ▪ 7,147 AFY (@700 mg/L TDS) ◦ Assumes only 1.2 AF/acre is supplied ◦ Supply limited ▪ Up to 11,741 AFY if more than 1.2 AF/acre is supplied	⊙	▪ Dependent on salinity control method (near-term) ▪ Up to 2,263 AFY @ 1,200 mg/L TDS (salinity limited, supply at 1.2 AF/acre) ▪ Up to 4,602 AFY @ 700 mg/L TDS (demand limited, supply 100% of demand)
Annualized and Unit[6] Distribution System Costs (addresses Criterion 3)	⊙	▪ $340 – $385/AF [4] ◦ Range from 2,470 AFY to 2,200 AFY recycled water used	⊙	▪ $275 – $1,220/AF [5] ◦ See Salinity Management Decision Matrix for more information
Ability to meet salinity goals **(addresses Criterion 4)**	●	▪ This service area has an existing blend supply from CVP water (7,147 AFY) ▪ Recycled water could be served directly as recycled water quality improves	○	▪ This service area requires a new salinity management method (see Salinity Management Decision Matrix) ▪ Recycled water could be served directly as recycled water quality improves
Equity considerations **(addresses Criterion 5)**	⊙	▪ This option would spread recycled water use over a large number of customers ▪ This would maintain delivered water quantities to the existing CVP system ▪ Some quality decreases would be seen in the water delivered to the existing CVP customers ▪ No benefit to Freitas Road Area	⊙	▪ This option would concentrate recycled water use in one area ▪ The service area has no current delivered water system ▪ This option would approximately maintain current salt loadings in the groundwater basin ▪ Potential for whole San Juan Valley to receive the same quantity of delivered water (1.2 AF/acre)
Projected recycled water supply scenario (near-term) (Addresses Criterion 5)	⊙	▪ Provide a portion of the delivered water served by the Blue Valve system and maintain the delivered water quantity at 1.2 AF/acre	⊙	▪ Option 1: Serve 100% of irrigation demand to a portion of the service area ▪ Option 2: Serve a portion of the irrigation demand, based on acreage, to the entire service area
Regulatory complications **(addresses Criterion 6)**	○	▪ Will need air gap, or other DHS approved backflow prevention, upstream of recycled water injection ▪ An air gap would require a large distribution pump station to re-pump CVP water (included in cost)	●	▪ Typical Title 22 implementation ▪ This alternative would include an air gap at the DWTP, if blending with CVP water is the salinity control strategy
Potential Public Response **(addresses Criterion 7)**	○	▪ Customers in the existing CVP service area may be opposed to having the quality of their delivered water decreased by adding recycled water ▪ Growers in the Freitas Road Area may be opposed to the project if they are not included	●	▪ Customers in the Freitas Road area are expected to be supportive to the receipt of delivered water ▪ If Option 1 (above) is chosen, the customers chosen to receive a full supply of recycled water may not be as amenable ▪ Existing CVP customers may want the added reliability of a delivered recycled water supply
Interaction with DWTP upgrade project (Addresses Criterion 8)	⊙	▪ Service area has demand that could serve as a primary disposal method for Hollister DWTP	⊙	▪ May provide alternatives for seasonal storage/wet-weather storage of effluent ▪ Service area could provide a significant portion of DWTP disposal needs
Interaction with San Juan Bautista CVP water supply project (Addresses Criterion 8)	○	▪ Would require a CVP extension pipe from the terminus of the Hollister Conduit to the proposed location of the surface water treatment facility (included in cost) or, ▪ Would require conversion of the plans to construct a groundwater treatment facility as opposed to a surface water treatment facility	●	▪ Approximately zero impact on implementation of CVP surface water treatment facility at San Juan Bautista
Phase 1 Service Area Evaluation	⊙	▪ Non-Preferred Phase 1 Project ◦ Difficult public acceptance problems ◦ Would require addressing regulatory complication and San Juan Bautista water supply issues immediately	●	▪ Preferred Phase 1 Project ◦ Uses Freitas Road area, where public acceptance is anticipated to be higher, as a demonstration project to show success in use of recycled water ◦ Minimal implementation complications (regulatory, public, City of San Juan Bautista water supply)

Notes for Table 6-3:

1) Project market distribution quantities assume that no recycled water storage is available
2) Actual irrigated area and demand for Freitas Road project will depend on the near-term salinity management approach
3) Recycled water demand quantities assume that ample storage is available to capture all wastewater flow
4) Annualized cost is based on 5% interest over a 30 year recovery period for costs developed during the Feasibility Study
5) Annualized cost is based on 5% interest over a 30 year recovery period for costs specifically developed for the multiple salinity management options for the Freitas Road area
6) Unit cost is based on total annualized recycled water project costs and recycled water uses based on a monthly market analysis during the irrigation season (March – November) assuming that wastewater flows average 5.0 MGD, there is no storage for recycled water and that recycled water can be used directly.

Considering the future water use outlook in California, recycled water is expected to be an extremely valuable resource in the future. Because of this expected value, the goal of the phased approach is to immediately begin implementation of a recycled water project in the Freitas Road Area where public perception for the project is anticipated to be positive as the area does not currently receive delivered water. This Phase I project provides the potential to expand recycled water service into the remainder of the San Juan Valley as a Phase II project.

This two phased approach was developed through discussions with the SBCWD staff with the specific goal of identifying the near-term and long-term recycled water projects and the need to meet the interests and goals of the SBCWD, Cities, stakeholders, and the region. The overall organization of the section is as follows:

- Phase I-Recycled Water to the Freitas Road Area
- Phase II-Expanded Recycled Water Use to the Existing CVP Service Area
- Estimated Cost
- Project Financing Strategies and Opportunities
- Implementation Strategy

The implementation strategy will be crucial in the effectiveness and success of the project. Section 6.4 describes this strategy by detailing three main areas; engineering refinement, funding strategy/opportunities and public outreach. Securing funding for the project will be a key factor in the cost feasibility of the projects. In addition, public acceptance and demand for recycled water will also be an important tenant in carrying out the project.

6.1 Phase I – Recycled Water to Freitas Road Area

The Phase I near-term project is generally the distribution of recycled water to the Freitas Road Service Area. Treatment facilities at the DWTP, currently in the design phase, would provide recycled water for use as an agricultural irrigation water supply. Until 2015, the date by which recycled water is mandated by the MOU to be provided at 700 mg/L TDS, a salinity management method is required. The delivered, blended water served to this area would be used for irrigation for edible food crops requiring Title 22 Disinfected Tertiary Recycled Water

In addition to Title 22 requirements, recycled water would also need to meet user and institutional requirements including a salinity goal of 700 mg/l TDS. Assuming recycled water TDS of 1,200 mg/l and CVP TDS of 300 mg/l, the expected blend ratio would be 44% recycled water and 56% CVP water to meet a TDS objective of 700 mg/l.

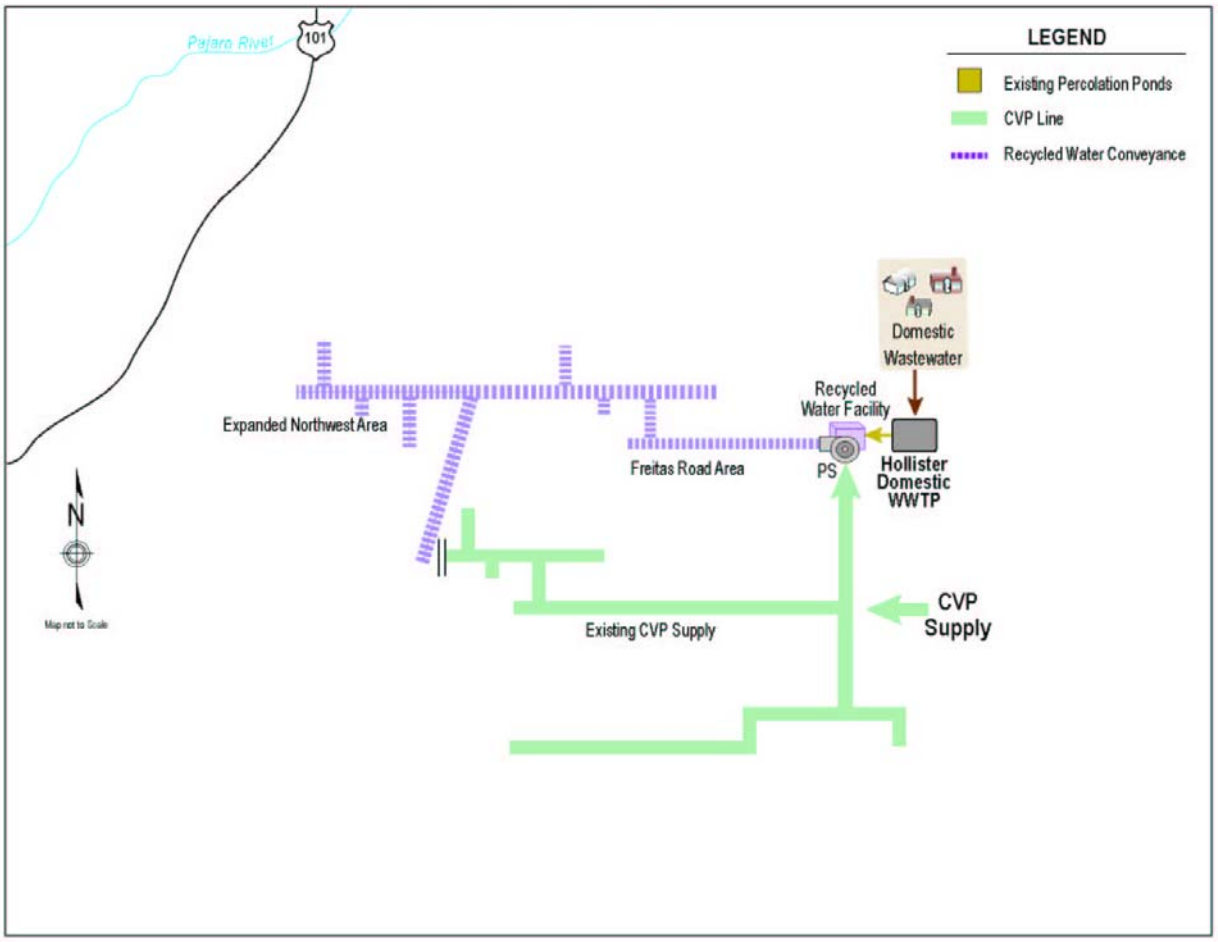
The Phase 1 project will result in water supply and reliability benefits, wastewater treatment and disposal benefits, a salt management benefit, and a groundwater level management benefit. These associated

benefits provide justification for the project and provide the basis for cost sharing. The following sections detail the recommended elements of the Phase I project.

6.1.1 Hollister Domestic Recycled Water to the Freitas Road Area

Recycled water facilities would be constructed at the Hollister Domestic WWTP to treat municipal wastewater from the City of Hollister sanitary sewer service area. The proposed facilities would include tertiary and disinfection upgrades to produce Title 22 disinfected tertiary recycled water allowing for irrigation of edible food crops. Recycled water would be blended with higher quality water or desalinated and served to agricultural customers connected to a new distribution system in the Freitas Road Area. If blending with CVP water is chosen as the preferred salinity management method, blending will occur in the distribution pump station wet well at the DWTP. The CVP supply would air gap from a dedicated pipe into the wet well to provide backflow protection for the CVP system. Figure 6-1 presents the Phase I - Recommended Project Schematic.

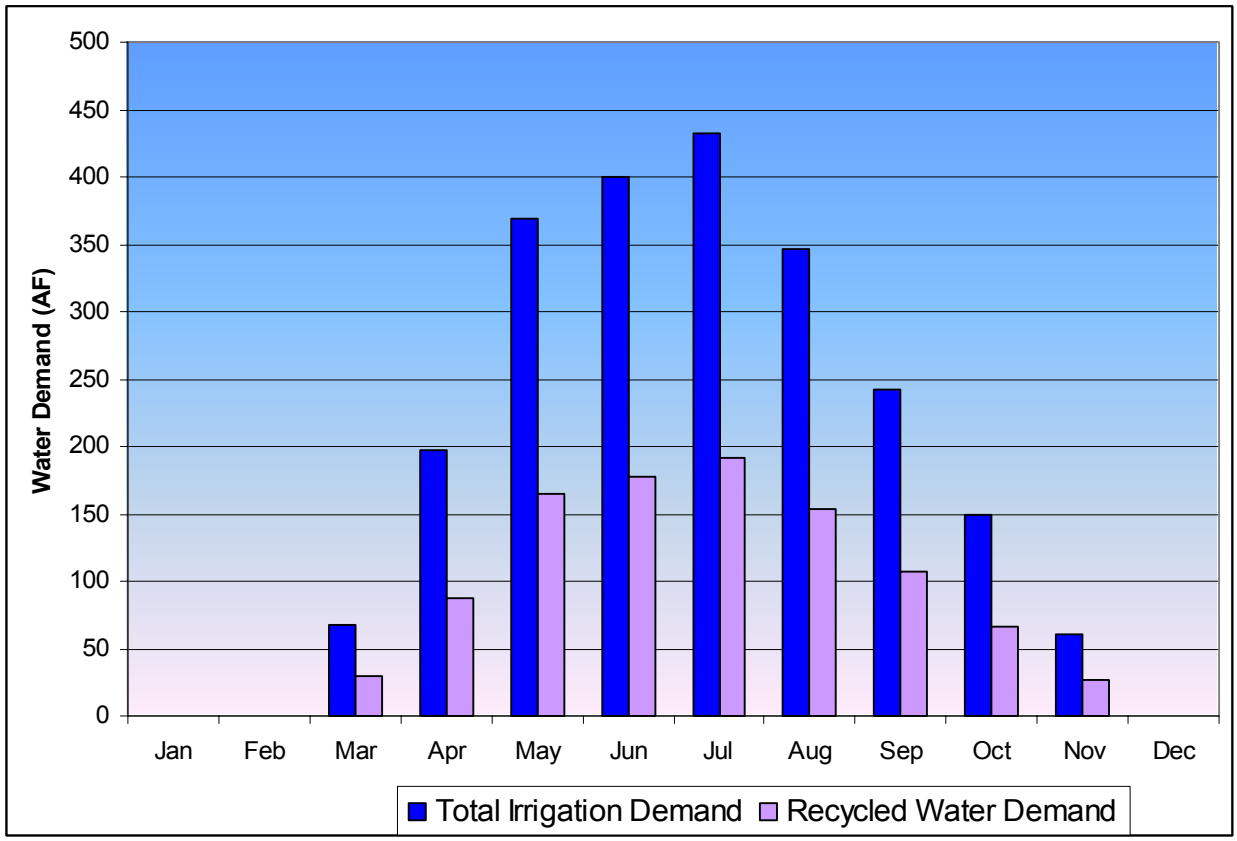
Figure 6-1: Phase I - Recommended Project Schematic



The treatment capacity of the recycled water facilities is designed to be 5.0 MGD, with expansion potential for up to 8.0 MGD. In 2008, projected to be the first year of recycled water deliveries, annual recycled water use in the Freitas Road Area would be approximately 1,010 AFY. To serve this level of demand, approximately 490 AFY of recycled water storage would be needed. This annual recycled water use is based on an allocation of 1.2 AF/acre of delivered water to provide the basis for equitable water

supply throughout the San Juan Valley. Recycled water use would be a function of agricultural demand and would generally be seasonal from March to November. Figure 6-2 shows the monthly recycled water use and overall demand for the Freitas Road Service Area.

Figure 6-2: Monthly Irrigation Demand (Freitas Road) and Recycled Water Use



During the winter, non-irrigation months, wastewater would continue be disposed of through percolation ponds. This would likely increase the disposal capacity in the percolation ponds as the planned Membrane Bio-Reactor treatment system produces effluent that is very low in turbidity and suspended solids. Due to this increase in treated water quality the percolation ponds would likely not plug as quickly. A recycled water project would also allow for annual maintenance of the existing disposal ponds during high demand periods, potentially improving the sustainability of the disposal pond system.

6.1.2 Salinity Management Methods

For any Phase 1 project, salinity management will play a key role in project implementation as the recycled water is not anticipated to be of high enough quality for direct use. This is particularly difficult for the Freitas Road Area as compared to the Existing CVP Service Area since they have no existing CVP allocation that could be used for blending. To address this need, multiple salinity management options were analyzed for this area and generally fell into two categories: blending and advanced treatment. The criteria used to evaluate these options were similar to those used in the phasing evaluation (see Table 6-1) with one additional criterion added: availability of water for salinity control. Unit cost assumptions are as detailed in previous sections.

	Blend Options (CVP)				Advanced Treatment Options		
Option → / **Criteria ↓**	**Reduce CVP Deliveries to existing SJV CVP Service Area and "re-allocate" to Freitas Road Area**	**Import Additional CVP Water into San Juan Basin**	**Connect with Expanded Northwest Portion of Existing San Juan Valley (SJV) CVP Service Area**	**Use CVP Supply from San Juan Oaks (SJO)**	**Desalinate Recycled Water**	**Desalinate Groundwater for Blending**	**Desalinate Groundwater for M&I Use**
Description of Option	▪ Reduce the quantity of delivered CVP water from 1.20 AF/acre to 1.02 AF/acre in the existing SJV Blue Valve system ▪ Build a CVP pipeline to the DWTP ▪ Blend water at the DWTP and supply to the Freitas Road Area ▪ Current SJV CVP allocation is 7,147 AFY on 5,956 acres	▪ This would be a temporary solution to salinity management that would import additional CVP water into San Juan Basin for blending ▪ Build a CVP pipeline to the DWTP ▪ Blend water at the DWTP and supply to the Freitas Road Area	▪ Build a distribution system through the Freitas Road Area ▪ "Break" the existing Blue Valve system to allow a direct recycled water connection from the new pipeline in Freitas Road ▪ Build a CVP pipeline to the DWTP ▪ Blend water at the DWTP and supply to the combined Freitas Road-NW Service Area	▪ Reduce quantity of CVP water used at SJO ▪ Current use is 350 AFY ▪ Planned use is 750 AFY ▪ SJO staff desires low salinity (400 mg/L TDS) water for irrigation	▪ Install desalination facilities at the DWTP to allow direct recycled water service to Freitas Road (700 mg/L TDS) ▪ Assume 4.6 MGD is desired product water capacity (@700 mg/L) ▪ Would require 2.7 MGD MF unit and 2.0 MGD RO unit (bypass flow of 2.6 MGD) ▪ Serve recycled water directly to Freitas Road Area	▪ Desalinate groundwater to 300 mg/L TDS to use as a blending source ▪ Assume 2.6 MGD is the desired delivery quantity (half of peak blend demand) ▪ Would require 2.6 MGD MF unit and 1.9 MGD RO unit (bypass flow of 0.7 MGD) ▪ Assume groundwater is 1000 mg/L TDS ▪ Send water to DWTP for blending and distribution	▪ Desalinate groundwater to 500 mg/L for use as a potable supply for Hollister ▪ Assume 2.0 MGD is the desired delivery quantity ▪ Would require 1.4 MGD MF unit and 1.1 MGD RO units (bypass flow of 1.0 MGD) ▪ Assume groundwater is 1000 mg/L TDS ▪ Would result in a decrease in RW salinity
Environmental Impacts (including groundwater and salt management; addresses Criterion 1)	▪ Would not exacerbate existing groundwater level problems in San Juan Valley	▪ Potential impacts to groundwater levels ▪ Long-term would allow for reductions in CVP water imported to the basin and the ability to manage groundwater levels (assuming improvements in RW salinity levels)	▪ Would not exacerbate existing groundwater level problems in San Juan Valley (no new water) ▪ Would spread the salt load from the DWTP throughout SJV instead of concentrating it near the DWTP	▪ Would not exacerbate existing groundwater level problems in San Juan Valley ▪ Would spread the salt load from the DWTP towards SJO GC instead of concentrating it near the DWTP	▪ Need for means of near-term brine disposal ◦ Regional disposal pipeline would not be ready by the time this project was needed ▪ Allows for groundwater management opportunities	▪ Need for means of near-term brine disposal ◦ Regional disposal pipeline would not be ready by the time this project was needed ▪ Allows for groundwater management opportunities	▪ Need for means of near-term brine disposal ◦ Regional disposal pipeline would not be ready by the time this project was needed ▪ Allows for groundwater management opportunities
Quantity of Blend Water (addresses Criteria 2, 5 & 9)	▪ 1,048 AFY (estimated) ◦ Reduction from 1.20 AF/acre to 1.02 AF/acre	▪ Assume that Freitas Road would be served at 1.2 AF/acre with blended water (1,886 acres) ▪ Would require 1,257 AFY of CVP water	▪ 3,011 AFY ◦ Existing CVP water use of 1.2 AF/acre from Northwest Area	▪ 500 AFY ▪ Assume that 250 AFY would be "sent back" as blended water (with 250 AFY of RW) ▪ 250 AFY for use in Freitas Road Area	▪ 0 AFY	▪ 1,257 AFY	▪ NA
Cost (addresses Criteria 3)	▪ $380/AF	▪ $380/AF ◦ Does not include cost for purchase of additional CVP water	▪ $275/AF	▪ $310/AF	▪ $910/AF ◦ Majority of cost is brine evaporation facilities	▪ $1,480/AF ◦ Majority of cost is brine evaporation facilities	▪ NA
Implementation Issues (addresses Criteria 3, 6 & 8)	▪ Amendments to customer agreements ▪ As recycled water quality improves, CVP water could be "given back" to existing customers	▪ Near-term groundwater impacts	▪ Determination of break point ▪ Shutdown procedure ▪ Would require pumps at DWTP to be larger to get water to the end of the pipeline	▪ An education program may allow for using higher salinity water and therefore increase the amount of CVP water that could be made available	▪ Brine disposal may be costly ▪ Storage of desalinated water would be required to minimize size of MF/RO facilities ▪ Facility is only needed until recycled water reaches 700 mg/L	▪ Could be a multi-use facility that would produce water for blending and water for potable use in Hollister. Would convert to potable water treatment in long-term ▪ May require fast tracking of Groundwater Desalination feasibility and design work to have the infrastructure ready when needed	▪ May require fast tracking of Groundwater Desalination feasibility and design work to have the infrastructure ready when needed
	▪ Agricultural CVP water is subject to restrictions in dry years (limited blend supply)				▪ Disposal of brine may complicate implementation		

Resulting quantity of total water served (near-term; addresses Criterion 4)	▪ 1,886 AFY ◦ 1,048 CVP ◦ 838 RW ◦ Would supply 1.0 AF/acre to Freitas Road service area	▪ 2,263 AFY ◦ 1,257 CVP ◦ 1,006 RW ◦ Would supply 1.2 AF/acre for Freitas Road Area	▪ 5,420 AFY ◦ 3,011 CVP ◦ 2,409 RW ◦ Would supply 1.2 AF/acre to whole service area	▪ 450 AFY to Freitas Road ◦ 250 CVP ◦ 200 RW ▪ 500 AFY to San Juan Oaks	▪ 2,263 AFY of recycled water could be served directly (1.2 AF/acre for Freitas Road Area) ◦ 4.6 mgd is half of peak demand	▪ 2,263 AFY ◦ Would supply 1.2 AF/acre for Freitas Road Area	▪ NA
Recycled Water Use/ Disposal Benefit for Hollister (addresses Criterion 4)	▪ 838 AFY ▪ Up to 2,263 AFY once RW can be used directly (1.2 AF/acre in Freitas Road area)	▪ 1,006 AFY ▪ Up to 2,263 AFY once RW can be used directly (1.2 AF/acre in Freitas Road area)	▪ 2,409 AFY in near term ▪ Up to 5,275 AFY once recycled water can be used directly	▪ 450 AFY in near term ▪ 950 AFY once recycled water can be used directly	▪ 2,263 AFY	▪ 1,006 AFY ▪ Up to 2,263 AFY once RW can be used directly (1.2 AF/acre in Freitas Road area)	▪ NA
Potential Public Responses (addresses Criteria 6 & 7)	▪ Opposition from existing SJV CVP customers as some of their delivered CVP water would be taken away	▪ Minimal	▪ Opposition from existing SJV CVP customers in the northwest area as they would have some of their CVP water replaced with recycled water	▪ May be some negative response from golf course patrons	▪ Cost of treatment facility may cause public concern	▪ Cost of treatment facility may cause public concern ▪ May have some favorable response as some water could be used for potable use in Hollister	▪ Cost of treatment facility may cause public concern
Screening	▪ **Not viable** ◦ Reduction in allocation would be met with extremely stiff public resistance	▪ **Secondary Choice** ◦ Groundwater impacts but may be necessary if other CVP blend supply can not be allocated	▪ **Primary Choice** ◦ May be difficult to garner public support from Northwest Area	▪ **Not viable** ◦ Does not provide a significant near-term disposal option	▪ **Not viable** ◦ Not cost-effective	▪ **Not viable** ◦ Not cost-effective	▪ **Not viable** ◦ Not guaranteed results ◦ Would likely need to be combined with another solution

Notes:

1) It should be recognized that these options are first-phase options and therefore may not meet the ultimate recycled water use goal of 3,000 AFY
2) Groundwater blending was considered but was eliminated as salinity levels of the groundwater precluded it as a blend supply
3) Options for source control, such as educational programs, rebate incentives, industrial source control, and water softener ordinance, were considered but will not provide a complete solution. Their implementation along would reduce the salinity level of the recycled water, decreasing the need for blend water but not solving the salinity issue with recycled water.
4) Unit costs assume direct use of recycled water is possible and storage (upstream or downstream) costs are not included but will be necessary to realize the full potential demand for each option

The primary recommendation from this evaluation step is to connect the Freitas Road area with the Expanded Northwest Area and utilize the existing CVP allocation held by the Expanded Northwest Area for a blending supply. A blended supply would then be delivered to customers in the Freitas Road and Expanded Northwest Areas. The 2008 projections of recycled water use for this project indicate that approximately 2,340 AFY of recycled water could be used in this Phase I service area. To assuage public concerns of the delivery of lower quality water, as compared to the CVP water they currently receive, customers in the Expanded Northwest Area would likely need to receive some sort of incentives to provide smooth implementation of the project. The specific incentives to be provided will be examined in the Facility Plan phase.

Recognizing that this concept will likely be met with some degree of public resistance from the existing CVP customers who would have their CVP allocation replaced with lower quality blended water, a secondary recommendation will be carried forward if implementation of this option is not feasible. Acquisition of additional CVP water allocation for the Freitas Road Area is the secondary option that may be necessary. Import of additional CVP water would potentially have groundwater level impacts that are deemed unacceptable.

Recycled water use is expected to increase as the salinity of the supply is reduced through implementation of CVP and groundwater M&I projects. This will allow recycled water to be used directly or at lower blend ratios for agricultural irrigation, eliminating the need for additional salinity management. The MOU signed by SBCWD, SBC and the City of Hollister requires that recycled water salinity be reduced to 700 mg/L by 2015. In 2015, wastewater flows are projected to be approximately 4,100 AFY (3.66 MGD). All of this potential water supply could be served in the Phase I service area and would result in a decrease in CVP water use in the San Juan Valley of approximately 1,830 AFY. With no increase in service area, up to 5,280 AFY of recycled water could be served in the Phase I service area once the recycled water improves to 700 mg/L TDS.

There are several different ways to perceive the water supply benefits associated with recycled water use. The added recycled water supply could supplement the current users CVP allotment. This is envisioned to be the likely preferred option of current CVP customers. Alternatively, recycled water supply could offset CVP water that is currently allotted. This would provide a variety of options for the offset CVP water. The offset CVP supply could be used in a new service area by expanding the CVP distribution system. The offset CVP supply could also go unallocated and be viewed as increased reliability for the existing system. Another potential option would be to bank CVP water with another agency.

6.2 Expanded Recycled Water Use

The long term water supply vision in the County includes implementation of CVP water and groundwater demineralization projects that would reduce the salinity of the potable water supply. This will ultimately lead to a reduction in salinity of wastewater making it more attractive for recycling. In other words, blending may not be necessary or may be reduced in the future as recycled water salinity levels will be reduced significantly through improved potable water quality. With the implementation of the potable water supply projects, TDS levels of the recycled water supply are expected to be between 500 and 800 mg/l. These salinity levels would allow for increased use of recycled water and expansion of the recycled water project.

The recommended Phase II project recognizes that the quality of recycled water will likely improve in the future with the implementation of CVP WTPs and demineralization of groundwater for potable use. The high quality potable water supply would also eliminate the need for water softening which would further reduce salinity concentrations in the recycled water supply. For discussion and evaluation purposes, it

was assumed that recycled water TDS levels would be reduced to 700 mg/l in the future. This would allow for direct use of recycled water for agricultural irrigation.

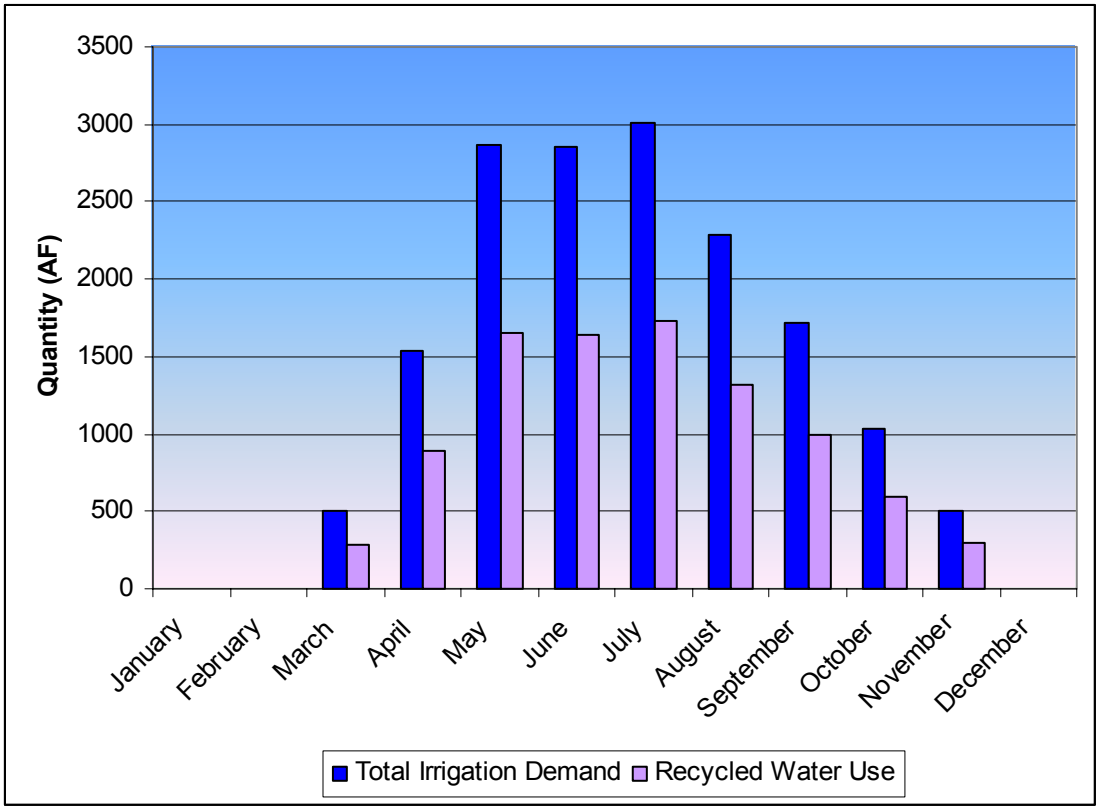
An improvement in recycled water salinity sets the stage for an expansion of the treatment facilities and distribution service area. The MBR facilities planned to be constructed at the Hollister DWTP would be expandable to 8.0 MGD with minimal additional capital investment. The additional recycled water supply would facilitate expansion of the distribution service area.

The preferred Phase II project is to increase the distribution system to include the remainder of the Existing CVP Service Area. This expanded distribution system would allow for the use up to approximately 9,400 AFY of recycled water based on 1.2 AF/acre allocation of delivered water. Figure 6-3 shows the monthly breakdown of overall irrigation demand and recycled water use. In addition, the San Juan Oaks Golf Course would be very easily brought on-line as a customer in this Phase. A treatment expansion to 8.0 MGD at the Hollister DWTP would provide approximately 8,960 AFY of recycled water supply requiring that other sources of recycled water be utilized to fully serve this maximum recycled water demand. Recycled water supplies of this quantity could eliminate CVP use in the San Juan Valley and allow SBCWD to pursue alternative uses of this valuable water supply. Alternative sources of supply include Sunnyslope County Water District, San Juan Bautista WWTP, vegetable processors, and the Hollister Industrial WWTP. Specific plans for the inclusion of these sources will be refined in the Facility Planning Phase of the project.

The existing CVP system provides water to both agricultural and M&I use in the County. Therefore, use of the system for recycled water distribution raises a key health concern associated with recycled water backflow into the system. Typically, air gap separation is required to prevent recycled water from entering the M&I water supply. A reservoir with CVP supplied above the water level could be built to provide an air gap. However, this setup would break the head of the CVP supply and would require pumping the blended supply to pressure for distribution. Breaking the head would involve a substantial investment in a distribution pump station and other capital costs. To avoid breaking the head of the CVP system, an alternative backflow prevention method and monitoring could be developed to protect the M&I uses. Check valves, backflow prevention devices, monitoring, and other measures may be employed at the blending point to assure the quality of the CVP water for M&I use and prevent contamination. In addition, negotiations will need to take place with the California DHS to approve these measures.

One additional portion of Phase II is the implementation of a CVP WTP for the City of San Juan Bautista. To allow the City to move forward with this planning, it is assumed that as part of Phase II a CVP pipeline extension is constructed to provide source water for this WTP. The pipeline would diverge from the Hollister conduit upstream of the blend point and the backflow prevention so that no recycled water would be conveyed to the WTP.

Figure 6-3: Monthly Irrigation Demand and Recycled Water Use for Ultimate Project



6.3 Estimated Cost

The estimated cost includes recycled water treatment facilities, distribution infrastructure, wastewater conveyance infrastructure, and other required facilities. Additionally, seasonal storage would be required to reach to recycled water use levels for each phase. Storage volumes of 490 AF, 1530 AF and 1920 AF would be needed in 2008, 2015 and 2022 respectively, Elements that are included in the cost for each phase include:

Phase 1 – Near-term

- Recycled water distribution pump station.
- Distribution system in the Freitas Road Area
- Segmentation of existing Blue Valve system
- CVP blend water supply pipeline to the Hollister DWTP (with air gap)
- Seasonal storage for recycled water (490 AF)

Phase 2 – Long-term

- Expansion of recycled water distribution pump station
- Construction of CVP pipeline extension to City of San Juan Bautista WTP
- Air-gap and pump station at blend point
- Reconnection of Blue Valve system
- Other intra-system connections as needed
- Expansion of recycled water seasonal storage (1430 AF)

Additional Items (not specifically included in the costs presented here)

- Initial construction of treatment facilities
- Future expansion of treatment facilities
- Wastewater or recycled water conveyance from "satellite" wastewater systems to a suitable treatment facility or blending location

Capital costs for the project were annualized assuming a 30-year recovery period and an interest rate of 5%. Estimated costs are in fall 2003 dollars. Assumptions for the estimated costs were summarized in Section 4 and 5. The feasibility level estimated cost of the Phase I and Phase II regional water recycling project is summarized in Table 6-4. The overall Recommended Alterative has a capital cost of $43.2 million with an annualized cost of $3.7 million. The overall unit cost for pumping and distribution is estimated to be $390 per AF. This unit cost is comparable to other recycled water projects that have been implemented throughout California. Recycled water costs would be recovered through a number of mechanisms associated with benefits of the project and grant funding. Additional details on the estimated costs are included in Attachment D.

Table 6-4: Estimated Cost of the Recommended Recycled Water Alternative

Project Elements	Estimated Cost		
	Phase I	**Phase II**	**Overall**
Recycled Water Distribution Pump Station	$3,600,000	-	$3,600,000
Recycled Water Distribution Infrastructure	$6,400,000	-	$6,400,000
Blend Point Pump Station/Air Gap	-	$2,900,000	$2,900,000
Expansion of Recycled Water Distribution System	-	$100,000	$100,000
CVP Pipeline Extension to the SJB WTP	-	$530,000	$530,000
Seasonal Storage	$3,370,000	$9,590,000	$12,960,000
Raw Construction Cost	**$13,400,000**	**$13,130,000**	**$26,530,000**
Construction Contingency	$4,000,000	$3,900,000	$7,900,000
Total Construction Cost	**$17,400,000**	**$17,030,000**	**$34,430,000**
Right of Way	$40,000	$20,000	$60,000
Engr, Legal, Admin, and Environmental	$4,400,000	$4,300,000	$8,700,000
Total Capital Cost	**$21,840,000**	**$21,350,000**	**$43,190,000**
Annualized Capital	$1,421,000	$1,389,000	$2,810,000
Annual O&M	$395,000	$462,000	$857,000
Total Annualized Cost	**$1,816,000**	**$1,851,000**	**$3,667,000**
Maximum Annual Yield (AFY)	5,280	4,140	9,420

Notes:
1) Annualized costs are based on a 30-year recovery period at 5% interest.
2) Costs are rounded to the nearest $10,000. Annualized capital and O&M costs are rounded to the nearest $1,000.

6.4 Project Financing Strategies and Opportunities

Implementation of the Recommended Alternative would result in a number of benefits associated with water supply and quality, wastewater treatment and disposal, and environmental as discussed in Section 5. The primary focus of this section is to identify funding strategies and opportunities. In general the financing strategies will work to follow the project benefits. Funds are available for various project stages from feasibility studies to design and construction.

6.4.1 Local Funding

In general, water supply and wastewater disposal functions in San Benito County are provided by public agencies. These agencies include municipalities, local water districts, localized County Service Areas and the SBCWD. These public agencies utilize "enterprise funds" or utility concepts to fund the construction, operation and maintenance of their projects. Under an enterprise fund or utility, each class of customer pays for service received. This is distinct from a "general fund" where tax revenue may be allocated for the overall good and benefits received are not required to be proportional to taxes paid.

In addition to its utility rates, SBCWD has access to both general and special tax revenue. These revenues allow SBCWD to accomplish it "general" functions, such as overall basin management and water supply reliability, that don't lend themselves to a user charge system.

The single largest advantage of an enterprise fund or utility is that utility rates and charges can be imposed through a public notice and hearing process and do not necessarily require approval by the voters.[1] Utility rates and charges, however, are subject to a "beneficiary" test and the public agency must make specific findings that the rates and charges proposed for each class of user are directly proportional to the benefits received by that class of user. Approved utility rates can be used to secure long term financing either in the form of State loans or local agency debt.[2]

Table 6-5 below provides a summary of the various project benefits, beneficiaries and potential funding mechanisms.

Table 6-5: Summary of Beneficiaries and Funding Mechanisms

Benefit Category	Beneficiaries	Public Agencies Serving the Beneficiaries	Potential Financing Mechanisms
Water Supply	Water Customers (Agricultural & Municipal/Industrial)	City of Hollister City of San Juan Bautista Sunnyslope Water District San Benito County Water District	Water Rates and Charges Certificates of Participation
Water Quality	Wastewater Customers Groundwater Pumpers	City of Hollister City of San Juan Bautista Sunnyslope Water District San Benito County Water District	Water Rates and Charges Wastewater Rates and Charges State Revolving Fund Loans Certificates of Participation
Wastewater Disposal	Wastewater Customers Vegetable Processors [a]	City of Hollister City of San Juan Bautista Sunnyslope Water District	Wastewater Rates and Charges State Revolving Fund Loans Certificates of Participation

Footnotes:

a. Vegetable processors currently disposal of their process wash water. In the future, a regional solution for disposal may be developed. However, the vegetable processors shall be financial responsibility for their process flow.

6.4.2 State/Federal Funding

The proposed Regional Water Recycling project involves a large capital expenditure and as elements that provide for broad, public trust benefits. For these reasons, pursuing additional funding will be a key task. This section summarizes current grant and loan programs. The construction grant funds available under

[1] If sufficient protest is received at the public hearing (typically 50-percent protest or greater), utility rates can be subject to election. This level of protest is rare but possible, particularly in smaller communities where the proposed rate supports a controversial project.

[2] While utility rates can secure Revenue Bonds, most agencies choose to utilize Certificates of Participation to secure long-term utility system debt.

current State Propositions may not be available by the time SBCWD is prepared to construct a project. However, it is anticipated that future State Propositions would be passed by California voters that would continue to provide funding for recycled water and environmental.

The main funds are available from the following agencies:

- State Water Resources Control Board (SWRCB)
- California Department of Water Resources (DWR)
- U.S. Bureau of Reclamation (USBR)

6.4.2.1 State Water Resources Control Board

The SWRCB administers several grant and loan funds that may be applicable to the regional recycled water project. The applicability of a grant or loan is dependent on the associated benefits of the recommended water recycling project.

1. Water Recycling Facilities Planning Grant (WRFPG)

This grant program provides up to 50% of the cost (up to $75,000) to fund feasibility studies for projects that can lead directly to the design and construction of water recycling projects using treated municipal wastewater. The funds for this grant program under Proposition 204 have been completely allocated. However, as an example of on-going funding opportunities, additional grant funds for water recycling facility plans are available under Proposition 50. Under the initial funding available from Proposition 50, the SBCWD was granted $350,000 for the completion of a regional facility plan.

2. Proposition 50

Approved by California voters in the November 2002 elections, funds allocated by Proposition 50 will be subject to appropriation by the Legislature through the State budget process. Initial appropriations are expected in fiscal year 2004-05. Most of these new funds will likely be allocated as grants.

- Chapter 5 (Clean Water and Water Quality) $100 Million
- Chapter 6 (Drinking Water Quality) $12 Million
- Chapter 8 (Integrated Regional Water Management) $250 Million

Proposition 50 funds are expected to be allocated over several fiscal years. The funds were initially expected to be obligated by 2005. However, based on discussions with the DWR staff, the funds may be obligated over a longer period.

3. State Revolving Fund (SRF)

The SRF is a perpetual loan program that provides low interest loans to fund water recycling projects that exceed $15 million, or are a cost-effective alternative in non-point source pollution control. Low interest loans are provided and are then repaid over a 20 year period. As the SRF is repaid the funds become available for other projects. The SRF program is currently over-prescribed, and no new contracts for SRF disbursement are being adopted until mid-2005.

4. Water Recycling Construction Program (Proposition 13)

The Water Recycling Construction Program (formerly the Water Recycling Loan Program) provides low-interest loans and grants to local public agencies for the design and construction of water recycling facilities. The types of facilities include wastewater treatment, recycled water storage facilities, pump stations, and recycled water distribution pipelines. A funding application must include a facilities plan to

document the need for the project, the alternatives that were analyzed, and the engineering, economic, financial, and institutional feasibility of the proposed facilities.

6.4.2.2 California State Department of Water Resources

The DWR administers grant and loan funding associated with legislation and several general obligation bond laws. These funds are targeted for water conservation and groundwater management purposes that could be linked with a recycled water project. The following sections identify both previous and present funding opportunities. Previous opportunities are summarized, as funds may be available under future propositions.

1. DWR Local Water Supply Project Feasibility Study Loans

This program under Proposition 82 has an annual budget of $2.0 million and each study is limited to a maximum loan amount of $500,000. The feasibility studies should demonstrate whether a proposed project is feasible in its engineering, hydrologic/hydrogeologic, environmental, economic, and financial aspects. The results of a feasibility study should provide the data necessary to develop a complete construction loan application. A construction loan application may be obtained from the DWR as a guide in preparing the feasibility study work plan. An applicant may not simultaneously request loans for both a feasibility study and project construction for a single project under the Local Water Supply Project Loan program. The interest rate for these loans is equal to the State's interest rate on the general obligation bonds sold to finance the program, which are typically approximately one-half the rate available to local municipal agencies.

2. Proposition 50 - Chapter 7 (Water Use Efficiency, Water Security) $90 Million

The grant provides funding for urban and agricultural water use efficiency, water quality, water quantity, water security, and Bay Delta Enhancement projects. Projects must demonstrate a direct or indirect benefit to the California Bay-Delta Authority. The funding program details and proposed Proposal Solicitation Package (PSP) for the grants were released for public review and comment in December 2003. The final request for proposals is scheduled to be released in April 2004.

6.4.2.3 United States Bureau of Reclamation

The United States Bureau of Reclamation (USBR) funds water recycling projects through Title XVI. This program allows USBR to provide funding for feasibility studies, environmental documentation, research and demonstration programs to test water reclamation and reuse technologies, and for construction of reuse projects. However, the program is restricted in that projects must be constructed and owned by a non-federal entity, as described in the "Guidelines for Preparing, Reviewing, and Processing Water Reclamation and Reuse Project Proposals Under Title XVI of Public Law 102-575, as Amended", prepared by the USBR.

One approach to obtaining Title XVI funding is through a Congressional write-in to the federal budget. This approach relies upon the local Congressional representative to initiate the budget request through Congressional review and approval of the President's budget. This approach has been successful for other California entities, but requires a significant level of assistance in Washington D.C. Further, for all Title XVI projects, the funding stream is dependent upon the annual Congressional appropriations process.

The Bureau provides 25% of the funding to a maximum amount of $20 million in the form of a grant, and the remaining 75% has to be provided from a non-federal source (the applicant). Congress authorizes the Bureau to fund projects. Funding under Title XVI requires annual authorization by Congress as federal

funds need to be incorporated into the annual federal budget. As with the funding for feasibility studies, appropriations can be obtained through the Congressional budget process.

6.5 Implementation Strategy

Implementation of this project would include public outreach efforts, a detailed market assurance investigation of the agricultural growers, regulatory permitting with the RWQCB and DHS, and various funding tasks. Additional planning level engineering evaluations should be completed to refine the treatment facilities, design criteria, backflow prevention strategy, and distribution pipeline alignments. A funding strategy should also be developed to pursue grants and loans as well as analyze the local funding mechanisms and constraints. The following sections detail some of the major tasks that will need to be completed in the next phase.

6.5.1 Design Refinement

Conveyance and distribution alignments would be reevaluated based on the detailed input from stakeholders and recycled water customers. Retrofit requirements will be identified for the design process. Retrofit requirements and operational needs and criteria for each customer will need to be defined. The detailed criteria will allow for evaluation of storage, pump stations, blending requirements and other facilities. Environmental impacts should also be considered when alignments travel near or within potential habitats. This may be especially necessary for the piping from Hollister to the blend point and for the CVP extension to the San Juan Bautista WWTP. The conveyance from Ridgemark to Hollister is expected to have very minimal environmental impacts as it will follow existing roads and streets. For the distribution system, operations, pipeline sizing, and flow conditions could be evaluated with a water system computer model such as H2O Net.

A Regional Recycled Water Facility Planning Study Report will document the new findings from the investigation and evaluations identified in the previous sections. Alternative concepts will be refined and estimated cost will be reevaluated. Treatment facilities will be laid out and preliminary pipeline alignments will be developed. Specific right of way needs will also be identified. Preliminary operations plans will be developed and assessed with computer modeling.

6.5.2 Environmental Compliance and Permitting

The project will also require environmental compliance with the California Environmental Quality Act (CEQA) to assess the environmental impacts of the project. Environmental compliance with the Federal National Environmental Policy Act (NEPA) may also be required if federal funding is pursued. Environmental documentation is planned for the facility planning phase and will be completed in conjunction with the facility plan. Mitigation measures outlined in the CEQA and NEPA documents would be incorporated in the design. The design process will also consist of applying for and securing permits for construction.

A key CEQA issue that needs to be addressed is coordination with the owners of the participating WWTPs. The City of Hollister, in particular, is developing treatment and disposal upgrade projects under a time schedule from the Central Coast Regional Water Quality Control Board. The project provides the City of Hollister with a unique partnership opportunity, provided SBCWD and other stakeholders can work with them on the required schedule.

A key permitting effort will be working with the California DHS to attempt to waive the air gap separation requirement eliminating the need to break the CVP water system head. Discussions with the DHS should take place in 2005 to assure that an alternative backflow prevention strategy can be

negotiated. This may involve some research into newer technologies as well as proven techniques to assure the quality of recycled water and other water supplies. Implementation tasks should also include coordination with the RWQCB and DHS to track regulatory developments and the latest thinking associated with recycled water use. Recycled water use would require a reclamation permit from the Central Coast RWQCB.

6.5.3 Public Outreach

The next phase of work should include continued coordination with stakeholders and though their involvement refinement of Phase I and Phase II plans. Stakeholder input will be key for refining alternatives and meeting interests of all parties involved. The following lists the activities that should occur to adequately engage the public and ensure their support:

- Public meetings and presentations
- Educational brochures, mailers, fliers
- Quarterly newsletter sent to public updating them on status of the project
- Sessions with stakeholder/target groups
- Articles in newspapers and interviews on radio

Meetings will need to be held with the SBCWD, stakeholders, the public, and agricultural growers to develop specific water quality and quantity criteria, coordinate planning and construction timelines, and establish a common project understanding to overcome institutional hurdles. Both those growers who will directly receive recycled water and those who may receive recycled water in the future should be organized to meet in regular target groups to gain and integrate their opinions into the project design and supply.

Support from local legislators, environmental groups will help to garner public support for the project. The WRA will also need to hold workshops and engage in outreach efforts with the public and local leaders to reinforce safety, health, and public acceptance of recycled water. In addition, public outreach campaign could involve mailings to further describe the project and the benefits. All these efforts should take place at the very onset of the project to prevent misunderstandings and effectively deal with any public opposition. Topics that need to be more fully developed and discussed with the public are included in Table 6-6.

Table 6-6: Public Outreach Messages

Area/Topic	Message	Topics Covered
Benefits	"*Through water recycling we can meet environmental needs, increase our quality of life, and still have sustainable development and a viable economy.*"	Benefits; additional water supply, reduction of concentrated deposit of salts around WWTP, decrease in high groundwater table around WWTP
Treatment/Health	"*Recycled water undergoes an intense treatment process of which strict regulations are strictly enforced.*"	Facts of recycled water; treatment processes, health standards and inspection
Other Projects	"*California is a pioneer in water recycling in the U.S." The Castroville area has been successfully using recycled water for irrigation of raw edible food crops since 1997.*	Examples of other similar communities that have successfully implemented recycled water in California (Castroville) and other states
Research	*"Like any new technology, there are questions that arise and water experts are investigating efforts to provide the answers."*	Ongoing research into effects of recycled water on groundwater and status of emerging contaminants

It is recommended that teaming agreements or MOUs between the SBCWD and stakeholders be signed to outline cost sharing for additional investigations and pursuit of funding. More detailed evaluations with stakeholders will need to be completed to identify specific interests and design criteria for a stakeholder project. This task would also include stakeholder workshops to update the stakeholder group on the progress of the project.

An additional step for the Phase I project is to develop agreements with the potential customers. User agreements between the SBCWD and potential customers would need to be developed to outline operations, maintenance, and administration of the project. Negotiations into these agreements can begin even before the additional detailed studies are complete. With the completion of the studies, detailed specifics regarding production, operation, and rates can be inserted into the contractual and memorandum of understanding agreements to be made between the Hollister WWTPs, Ridgemark WWTPs, San Juan Bautista WWTP, and the SBCWD.

6.5.4 Project Funding & Cost Sharing

The Regional Water Recycling project presents a unique opportunity for the water and wastewater agencies to cooperate on a project of mutual benefit. Implementing this portion of SBCWD's Ground Water Management Plan at this time, provides important support to the north county wastewater agencies treatment and disposal project. By leveraging the benefits of recycling, the project has the potential to provide the most good for the least cost to the people of San Benito County.

For Phase I, SBWCD should pursue state and federal grants opportunities. Specifically grants under Proposition 50's Chapters 5, 6, and 7 should be pursued because they match the project description of improving water quality and efficiency, overall improved basin management, and water recycling initiatives. Funds from Title XVI of the US Bureau of Reclamation could also be pursued, but would require a more substantial effort as a congressional representative must first initiate the funding.

Both the Proposition 50 and USBR programs tend to cap their participation at 25% of project construction costs. Current State Water Recycling grant funding also includes an overall project funding cap of $5,000,000. For the purpose of the initial cost sharing analysis, the report assumes the Public Trust benefit is accurately represented by an outside cost share of 25% or $5,000,000. This report also assumes that the remaining 75% of the project cost must be supported by the local water and wastewater interests in proportion to the water supply, water quality, wastewater disposal and groundwater level benefits that they receive. This report also assumes that each benefit category carries equal weight. Table 6-7 below presents an initial benefit allocation.

Table 6-7: Summary of Benefit Allocation and Cost Sharing for Phase I project

Benefit Category	Beneficiaries	Benefit Allocation	Benefit Quantity
Water Supply	Water Customers (Agricultural & Municipal/Industrial)	100% to Water Supply Agencies	5,280 AFY [a]
Water Quality	Wastewater Customers Groundwater Pumpers	50% to Wastewater Agencies 50% to Water Supply Agencies	5,280 AFY [a] 45,680 AFY [b]
Wastewater Disposal	Wastewater Customers Food Processors	100% to Wastewater Agencies	5,280 AFY [a]
Groundwater Level	Wastewater Customers Agriculture	25% to Wastewater Agencies for local effects 75% to Water Management Agency for regional effects	5,280 AFY [a] 67,760 AFY [c]

Footnotes:
a. Total recycled water supply/use.
b. 2002 groundwater pumping total.
c. Total groundwater and CVP water used in 2002.

The initial benefit allocation results in the following cost sharing formula between water and wastewater agencies:

For Wastewater Agencies:

(0* Water Supply + .5* Water Quality +1.0* Wastewater Disposal + .25* Groundwater Level)/4 =

1.75/4 = 44%

For Water Supply/Management Agencies:

(1* Water Supply + .5* Water Quality +0* Wastewater Disposal + .75* Groundwater Level)/4 =

2.25/4 = 56%

Table 6-8 presents the application of this cost-sharing formula to the recommended Phase 1 project and assumes a $5,000,000 grant contribution.

Table 6-8: Preliminary Allocation of Costs for Phase 1

	Total Cost	44% Wastewater Share	56% Water Share
Total Capital Cost	$21,840,000		
Grant Contribution	$5,000,000		
Local Capital Cost	$16,840,000	$7,410,000	$9,430,000
Annualized Local Capital Cost	$1,095,000	$482,000	$613,000
Operations & Maintenance Cost	$395,000	$174,000	$221,000
Total Annual Cost	**$ 1,490,000**	**$656,000**	**$834,000**

6.5.5 Facility Plan Schedule

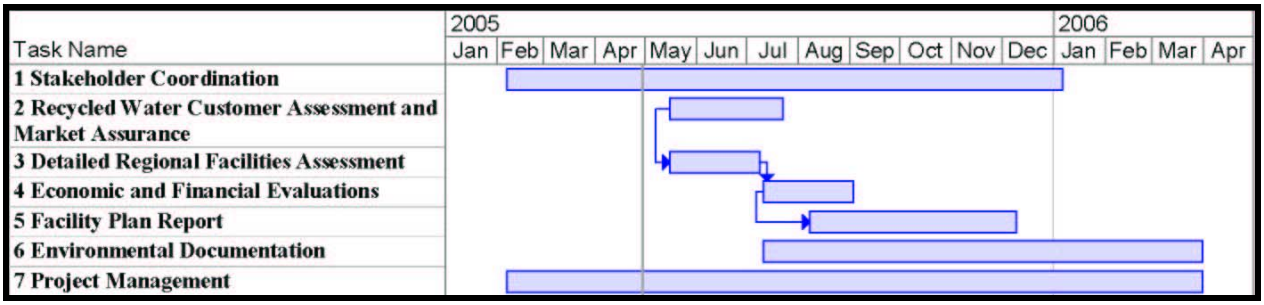
Maintaining and keeping to a well designed project schedule is important in reducing project costs and realizing project benefits as soon as possible. The SBCWD is extremely committed to complete the project in a timely manner and the schedule reflects their efforts. The next step in the schedule is complete the Draft Facility Plan on the recommended alternative by December 2005.

Environmental documentation for the project will be completed in conjunction with the Facility Plan Report. Early documentation before the completion of the facility plans is important to integrate mitigation measures into the final plans. The major impacts that can be initially reviewed include:

- Impacts from pipeline construction; Freitas Road distribution system, CVP blend water pipeline.
- General habitat, noise, and visual impacts from construction of recycled water facilities at the Domestic Hollister WWTP.
- Groundwater impacts from reduced disposal and blending of CVP water.
- Impact on CVP growers using recycled water; possible changes in techniques and soil amendments.

The facility plan will include a more detailed market assessment and assurance program to evaluate customers involved in the Phase I and Phase II service areas. This program is anticipated to be conducted from May until July 2005. The next stage will involve economic and financial evaluations and will include pursuit of local, state, and federal funding. In addition, public outreach should take place throughout the project period beginning with more in-depth efforts in May 2005. Figure 6-4 shows the proposed schedule for the facility plan phase. Design and construction phases are not shown in the schedule but are expected to follow the completion of the Environmental Document and the Facility Plan Report. Design and construction phases will be dependent on project financing and may be a function of grant availability.

Figure 6-4: Project Schedule



REFERENCES

Ayers, Robert. "Quality of Water for Irrigation, ASCE Irrigation and Drainage Division." June 1977.

California State University - Cal Poly San Luis Obispo. "Evapotranspiration Data." Irrigation and Training Research Center. http://www.itrc.org/ETWeb/WBandISHomePage.htm

California Certified Organic Farmers. "CCOF Handbook 2002." January 2003.

Cattaneo, Jeff. "Personal Communication – Existing CVP System." December 2003.

County of San Benito, "San Benito County 2000 Annual Crop Report," May 2001.

David Powers and Associates, "Draft Program Environmental Impact Report – Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin," San Benito County Water District, August 2003.

Department of Food and Agriculture. "Health and Safety Code."

Department of Health Services. "California Health Laws Related to Recycled Water." June 2001.

Department of Health Services. "Groundwater Recharge Reuse Draft Regulations." July 2003.

Department of Water Resources. "Bulletin 113-3 Vegetable Water Use in California." April 1975.

Department of Water Resources. "Weather Station Data – Station #126 and #143." California Irrigation Management Information System. http://wwwcimis.water.ca.gov/

E.V. Maas, U.S. Salinity Laboratory. "Data on Boron Threshold."

Fuller, Scott. "Personal Communication – San Juan Oak Golf Course Development." August 20, 2003.

Hydroscience. "Data on Potential Urban Customers in City of Hollister Area." 2003.

Hydroscience. "Predesign Report for Domestic Wastewater System Improvements." 2004

Hydroscience. "Report of Waste Dischscharge for Domestic Wastewater System Improvements." 2004

Kennedy/Jenks Consultants, "Groundwater Report Update for the San Benito County Part of the Gilroy-Hollister Groundwater Basin," July 2003.

Montgomery Watson Harza. "Northeast Fairview Development – Recycled Water Study." April 2001.

Montgomery Watson Harza, "San Juan Bautista Area Water Reclamation Study – Final," May 2002.

Montgomery Watson Harza, "Sunnyslope County Water District – Recycled Water Study, Final," November 2001.

National Water Research Institute. "Ultraviolet Disinfection, Guidelines for Drinking Water Reuse." December 2000.

RWQCB Central Coast Region, "City of Hollister Administrative Civil Liability Order No. R3-2002-0097," September 2002.

RWQCB Central Coast Region, "City of Hollister Cease and Desist Order No. R3-2002-0105," September 2002.

RWQCB Central Coast Region, "City of Hollister Domestic Wastewater Treatment Facility – WDR Order No. 87-47," March 1987.

RWQCB Central Coast Region, "City of Hollister Industrial Wastewater Treatment Facility – WDR Order No. 00-20," September 2000.

RWQCB Central Coast Region, "City of San Juan Bautista – WDR Order No. 00-006, NPDES No. CA0047902," February 2000.

RWQCB Central Coast Region, "City of San Juan Bautista – WDR Order No. R3-2003-0087, NPDES No. CA0047902," September 2003.

RWQCB Central Coast Region, "Sunnyslope County Water District, Ridgemark Estates Subdivision – WDR Order No. 89-58," April 1989.

RWQCB Central Coast Region, "Tres Pinos County Water District – WDR Order No. 99-101," October 1999.

SBCWD, "The Water Line," November 2001.

Swanson International Engineering, "Wastewater Treatment Facilities Evaluation – Ridgemark Estates," March 2003.

United Nations Food and Agriculture Organization. "Irrigation and Drainage Paper 24." 1975.

University of California Cooperative Extension. "Leaflet 2995 - Water Quality: Its Effects on Ornamental Plants" 1985.

University of California Riverside Turf Grass Research Program. "UCRTRAC Newsletter." June 1998.

U.S. Department of Agriculture. "Technical Bulletin No. 448."

Yates, Gus, "Annual Groundwater Report for the 2004 Water Year," San Benito County Water District, 2004.

Yates, Gus, "Annual Groundwater Report for the 2003 Water Year," San Benito County Water District, 2003.

Yates, Gus, "Annual Groundwater Report for the 2002 Water Year," San Benito County Water District, 2002.

Yates, Gus, "Annual Groundwater Report for the 2001 Water Year," San Benito County Water District, 2001.

Appendices

Appendix A

Agricultural Acreage and Water Use Estimates

Table A-1: Summary of Cropping Pattern by Potential Market Area

Crop	Crop Acreage			
	San Juan Valley CVP Service Area	Northwest Area	Freitas Service Area	Wright and Buena Vista Road Area
Alfalfa Hay and Clover	2	2	11	0
Apple, Pear, Cherry, Plum and Prune	323	87	322	32
Beans	37	21	0	0
Flowers, Nursery and Christmas Tree	39	14	30	0
Grain and Grain Hay	9	0	0	7
Melons, Squash, and Cucumbers	21	0	17	0
Misc. Deciduous	57	49	0	0
Misc. field crops	31	9	86	29
Onions and Garlic	304	17	101	0
Pasture and Misc. Grasses	16	8	12	6
Peach, Nectarine and Apricots	30	2	0	198
Potatoes, Sugar beets, Turnip etc..	627	1	119	0
Small Vegetables	3,010	686	668	310
Strawberries	7	0	0	0
Tomatoes and Peppers	1,372	228	194	156
Turf	0	0	217	0
Walnuts	72	0	109	156
Total	**5,957**	**1,124**	**1,886**	**894**

Notes:
1. Acreage based on 1997 DWR land use data.

Table A-2: San Juan Valley CVP Service Area

Crop	Acreage	Average Annual Crop ET (af/ac/yr)	Net Irrigation Appl. (af/yr)	Gross Irrigation Appl. (af/yr)
Alfalfa Hay and Clover	2	3.8	7	9
Apple, Pear, Cherry, Plum and Prune	323	3.2	934	1,167
Beans	37	2.2	49	61
Flowers, Nursery and Christmas Tree	39	3.1	108	135
Grain and Grain Hay	9	1.7	10	13
Melons, Squash, and Cucumbers	21	1.6	25	31
Misc. Deciduous	57	3.1	159	199
Misc. field crops	31	2.2	55	69
Onions and Garlic	304	1.7	358	447
Pasture and Misc. Grasses	16	3.8	53	67
Peach, Nectarine and Apricots	30	3.2	85	107
Potatoes, Sugar beets, Turnip etc.	627	2.9	1,527	1,908
Small Vegetables	3,010	1.9	4,004	5,005
Strawberries	7	2.2	12	15
Tomatoes and Peppers	1,372	1.6	1,768	2,210
Walnuts	72	3.4	224	280
Total	**5,957**		**9,378**	**11,723**

Notes:
1. Acreage based on 1997 DWR land use data.

Table A-3: Freitas Service Area

Crop	Acreage	Average Annual Crop ET (af/ac/yr)	Net Irrigation Appl. (af/yr)	Gross Irrigation Appl. (af/yr)
Alfalfa Hay and Clover	11	3.8	35	44
Apple, Pear, Cherry, Plum and Prune	322	3.2	931	1,163
Beans	0	2.2	0	0
Flowers, Nursery and Christmas Tree	30	3.1	84	105
Grain and Grain Hay	0	1.7	0	0
Melons, Squash, and Cucumbers	17	1.6	21	26
Misc. Deciduous	0	3.1	0	0
Misc. field crops	86	2.2	154	192
Onions and Garlic	101	1.7	119	149
Pasture and Misc. Grasses	12	3.8	40	50
Peach, Nectarine and Apricots	0	3.2	0	0
Potatoes, Sugar beets, Turnip etc.	119	2.9	289	361
Small Vegetables	668	1.9	888	1,110
Strawberries	0	2.2	0	0
Tomatoes and Peppers	194	1.6	250	312
Turf	217	2.8	530	662
Walnuts	109	3.4	336	420
Total	**1,886**		**3,677**	**4,596**

Notes:
1. Acreage based on 1997 DWR land use data.

Table A-4: Wright and Buena Vista Road Area

Crop	Acreage	Average Annual Crop ET (af/ac/yr)	Net Irrigation Appl. (af/yr)	Gross Irrigation Appl. (af/yr)
Alfalfa Hay and Clover	0	3.8	0	0
Apple, Pear, Cherry, Plum and Prune	32	3.2	93	116
Beans	0	2.2	0	0
Flowers, Nursery and Christmas Tree	0	3.1	0	0
Grain and Grain Hay	7	1.7	8	10
Melons, Squash, and Cucumbers	0	1.6	0	0
Misc. Deciduous	0	3.1	0	0
Misc. field crops	29	2.2	52	65
Onions and Garlic	0	1.7	0	0
Pasture and Misc. Grasses	6	3.8	20	25
Peach, Nectarine and Apricots	198	3.2	566	707
Potatoes, Sugar beets, Turnip etc.	0	2.9	0	0
Small Vegetables	310	1.9	412	515
Strawberries	0	2.2	0	0
Tomatoes and Peppers	156	1.6	201	251
Walnuts	156	3.4	483	604
Total	**894**		**1,834**	**2,292**

Notes:
1. Acreage based on 1997 DWR land use data.

Table A-5: Northwest Service Area (Subset of SJV CVP Service Area)

Crop	Acreage	Average Annual Crop ET (af/ac/yr)	Net Irrigation Appl. (af/yr)	Gross Irrigation Appl. (af/yr)
Alfalfa Hay and Clover	2	3.8	6	8
Apple, Pear, Cherry, Plum and Prune	87	3.2	252	315
Beans	21	2.2	37	47
Flowers, Nursery and Christmas Tree	14	3.1	39	48
Grain and Grain Hay	0	0.0	0	0
Melons, Squash, and Cucumbers	0	0.0	0	0
Misc. Deciduous	49	3.1	136	170
Misc. field crops	9	2.2	16	20
Onions and Garlic	17	1.7	20	25
Pasture and Misc. Grasses	8	3.8	27	33
Peach, Nectarine and Apricots	2	3.2	6	7
Potatoes, Sugar beets, Turnip etc.	1	2.9	2	3
Small Vegetables	686	1.9	912	1,141
Strawberries	0	0.0	0	0
Tomatoes and Peppers	228	1.6	294	367
Walnuts	0	0.0	0	0
Total	**1,124**		**1,747**	**2,184**

Notes:
1. Acreage based on 1997 DWR land use data.

Appendix B

Water Quality

B.1 Agricultural Water Quality Guidelines

B.1.1 Plant/Crop Tolerance

The suitability of water for irrigation is assessed by evaluating the concentrations of various chemical constituents. In addition to water quality, prevailing soil physical and chemical conditions, climate, plant type, salt tolerance level, irrigation methodology, and management should also be considered. These factors considered in combination determine the suitability of a particular water for the intended use. The affect of salinity and other important water quality constituents and the general tolerance of agricultural crops and landscape plants are summarized in the following sections.

B.1.2 Salinity

Irrigation water salinity is usually determined by measuring the electrical conductivity (ECw), usually expressed as umhos/cm or mmhos/cm at 25°C. This is an important parameter in determining the suitability of water for irrigation. The ECw can be used as a surrogate measure for determining the Total Dissolved Solids (TDS) concentration, usually expressed as mg/L. In general, irrigation water with salinity less than about 0.75 mmhos/cm (about 480 mg/L TDS) is considered suitable for irrigation without potential crop loss or plant injury. Based on the review of limited water quality data, the recycled water salinity may affect the growth of salt sensitive agricultural crops and landscape plants.

Irrigation water salinity may result in plant growth problems if salts are allowed to accumulate in the root zone and soil salinity concentrations exceed plant salt tolerance levels. Most of the salt added to the soil from irrigation remains in the soil as water is removed by the plant. Leaching, which is the application of additional irrigation water to remove these excess salts, allows for the development of a salt balance within the plant root zone. Assuming an adequate leaching fraction, salt balance is achieved and the average salinity of the root zone will approximate the salinity of the applied irrigation water. Plants generally respond to the average soil salinity and any increase in irrigation water salinity results in an increase in average soil salinity. Different plants types and varieties vary in their tolerance to soil salinity and once the plant salt tolerance threshold is exceeded, injury may occur. The salt tolerance of selected agricultural crops, and various grasses and landscape plants are summarized in Tables B-1 to B-4.

B.1.3 Soil Permeability

Applying irrigation water that is high in sodium may result in an infiltration problem. Infiltration refers to the entry of water into the soil. The infiltration rate is a function of sodium and salinity concentrations as well as soil characteristics. In general, the infiltration rate generally increases with increasing salinity or decreasing sodium content relative to the level of calcium and magnesium. The infiltration rate decreases with either decreasing salinity or increasing sodium content relative to the level of calcium and magnesium. Excessive sodium in irrigation water promotes deflocculation of the soil aggregates, which causes plugging and sealing of the surface pores. Excessive sodium may make it difficult to infiltrate adequate water to meet plant demand. Further, other problems related to impeded infiltration such as crusting, lack of soil aeration, plant diseases and insect control problems might complicate management.

The adjusted sodium adsorption ratio (adjusted SAR) is an index of the sodium hazard to crops and soils. The adjusted SAR considers the impact of both sodium and bicarbonates in solution. Bicarbonates infiltrating into the soil can precipitate calcium as calcium carbonate. As calcium is lost from the soil, the relative proportion of sodium in the soil is increased, which in turn can cause a reduction in soil permeability.

Applying water with an adjusted SAR below 6 usually does not cause permeability problems. If the adjusted SAR is between 6 and 9, permeability problems can occur on fine-textured soils, especially those

with drainage problems. An adjusted SAR above 9 will usually result in increased permeability problems on all mineral soils except coarse, sandy soils.

Recently, researchers have developed a procedure to replace the adjusted SAR that more correctly assesses the sodium hazard. This new procedure, the adjusted RNa, corrects some erroneous assumptions used in the Adjusted SAR calculation and accounts for other factors not included. Generally, the adjusted SAR can be used, but the University of California recommends dividing the value by half to more correctly assess the sodium hazard. Both the adjusted SAR and adjusted RNa were presented in Table B-7 summarizing irrigation water quality guidelines.

Water and soil amendments are often used to correct sodium induced infiltration problems. Soil application and incorporation of gypsum is the preferred approach, but this option doesn't work well with landscape plantings. Dissolution of gypsum in irrigation water is sometimes used, but it's often difficult to apply adequate material because of limits on the amount of gypsum that can be dissolved. Also, water treatment using gypsum increases the irrigation water salinity.

The water quality data did not contain adequate information to fully assess the potential impact to soil quality from recycled water sodium concentrations. However, given the relatively high sodium levels, there appears to be a significant hazard to soil resource quality associated with the use of recycled water for irrigation.

B.1.4 Toxicity from Root Absorption

Most trees and woody perennial plants are sensitive to chloride, sodium and boron. These constituents are absorbed by plant roots and transported to the plant leaves where they accumulate. This accumulation may result in undesirable, damaging symptoms.

Crop yield may be impacted from root absorption of sodium, chloride and boron. Typical threshold levels are an adjusted SAR/RNa of 3.0, chloride concentration of 142 mg/L, and a boron concentration of 0.5 mg/L (Ayers, 1977). The toxic effects from these constituents usually occur on woody perennial plants. Annual plants are usually more tolerant of these constituents.

Incipient sodium injury is usually exhibited by a mottled or chlorotic appearance of the leaf tissue. Leaf injury caused by excess sodium usually results in necrotic areas on the leaf tips, margins, or in the interveinal areas. Damage usually appears on older leaves. The threshold concentration above which damage may occur to sensitive plants from root absorption is an adjusted SAR/RNa of about 3.0. Based on the limited water quality data, there appears to be a significant hazard to sodium sensitive crops from potential root absorption.

Symptoms of chloride injury vary between different plant types. However, a consistent symptom of excess chloride is reduced leaf size and slower growth rate. Other symptoms of excess chloride include chlorosis, burning or firing of the leaf tips or margins, bronzing, premature yellowing and leaf abscission. Damage occurs first to the older plant foliage. The threshold concentration above which damage may occur to sensitive plant types from root absorption is about 142 mg/l (4.0 meq/l). Based on the limited water quality data, there appears to be a significant hazard to sodium sensitive crops from potential root absorption.

Toxicity problems associated with uptake from root absorption are often managed by leaching. However, boron is difficult to remove from the root zone by leaching. Plant salinity and boron tolerance are generally not correlated. The potential affect to plants from boron in irrigation water is summarized as follows:

- <0.5 mg/l Satisfactory for all plants.
- 0.5 to 1.0 mg/l Satisfactory for most plants, but sensitive plants may exhibit leaf injury.
- 1.0 to 2.0 mg/l Satisfactory for semi-tolerant plants.
- 2.0 to 10.0 mg/l Satisfactory for only tolerant plants.

Symptoms of early stages of boron injury are generally characterized by leaf tip yellowing. Excess boron usually results in a progressive necrosis of the leaf beginning at the tip and/or margins as chlorotic yellowing and spreading between the lateral leaf veins toward the midrib. The leaf tip and margins eventually show a burned or scorched appearance, which progresses to the entire leaf before it drops prematurely. Data were not available to assess the potential impact to plant growth from recycled water boron concentrations. The boron tolerance of various agricultural crops and ornamental plants are summarized Tables B-5 and B-6.

B.1.5 Toxicity from Foliar Absorption

Sprinkler irrigation may result in foliar absorption of chloride and sodium, which may cause leaf damage and abscission once toxic levels in the leaf tissue are reached. The threshold concentration above which damage may occur to sensitive plants is about 106 mg/l for chloride and 69 mg/l for sodium (3.0 meq/l for both chloride and sodium). Leaf type plays an important role in determining the tolerance of trees and woody perennials to damage from foliar absorption of chloride and sodium. As with root absorption, annual plants are generally tolerant. This issue is probably more important to the irrigation of landscape trees and shrubs where sprinkler irrigation is widely used. Based on the limited water quality data, there appears to be a significant hazard to sodium sensitive crops from potential foliar absorption.

B.1.6 Bicarbonate

Bicarbonates in irrigation water applied by sprinkler irrigation systems may result in the formation of white deposits on plant foliage. This generally does not affect crop yield, but may affect crop quality and the aesthetic value of landscape plantings. This problem is usually associated with irrigation water bicarbonate concentration above about 90 mg/l and generally occurs during periods of high evaporative demand. This potential problem can be managed by certain irrigation strategies and changing to nighttime irrigation.

B.1.8 Nitrogen

Nitrogen is a primary plant nutrient often found in recycled water. Some agricultural crops are sensitive to excess nitrogen and may suffer from reduced yield, degraded quality, and delayed maturity. Nitrogen management is an important consideration for both agricultural crops and landscape plantings. The nitrogen applied in recycled water should be considered in planning crop/plant fertility programs.

Table B-1: Salt Tolerance of Agricultural Crops

Crop	Percent Reduction in Yield by Irrigation Water Salinity (ECw) (mmhos/cm)			
	0%	10%	25%	50%
Field Crops				
Barley (grain)	5.3	6.7	8.7	12.0
Bean	0.7	1.0	1.5	2.4
Corn (grain)	1.1	1.7	2.5	3.9
Safflower	3.5	4.1	5.0	6.6
Sorghum	2.7	3.4	4.8	7.2
Fruit & Nut Crops				
Almond	1.0	1.4	1.9	2.7
Apple	1.0	1.6	2.2	3.2
Apricot	1.1	1.3	1.8	2.5
Grape	1.0	1.7	2.7	4.5
Lemon	1.1	1.6	2.2	3.2
Orange	1.1	1.6	2.2	3.2
Peach	1.1	1.4	1.9	2.7
Pear	1.0	1.6	2.2	3.2
Plum	1.0	1.4	1.9	2.8
Walnut	1.1	1.6	2.2	3.2
Vegetable Crops				
Cantaloupe	1.5	2.4	3.8	6.1
Cucumber	1.7	2.2	2.9	4.2
Lettuce	0.9	1.4	2.1	3.4
Onion	0.8	1.2	1.8	2.9
Pepper	1.0	1.5	2.2	3.4
Sweet Potato	1.0	1.6	2.5	4.0
Tomato	1.7	2.3	3.4	5.0
Forage Crops				
Alfalfa	1.3	2.2	3.6	5.9
Barley (hay)	4.0	4.9	6.3	8.7
Bermuda grass	4.6	5.7	7.2	9.8
Corn (forage)	1.2	2.1	3.5	5.7
Perennial rye grass	3.7	4.6	5.9	8.1
Sudan grass	1.9	3.4	5.7	9.6

Notes:
1. Source: Ayers, Robert, Quality of Water for Irrigation, ASCE Irrigation and Drainage Division, June 1977.
2. ECw is the electrical conductivity of the irrigation water.
3. The highlight row signifies the most sensitive crop grown in the market area.

Table B-2: Relative Salt Tolerance of Turfgrass

Low (ECe <4 mmhos/cm)	Moderate (ECe 4 to 8 mmhos/cm)	High (ECe 8 to 16 mmhos/cm)
Kentucky Bluegrass	Tall Fescue	Puccinellia Distans
Highland Bentgrass	Perennial Ryegrass	Hybrid Bermuda
Red Fescue		St. Augustinegrass
Meadow Fescue		Seaside Bentgrass
		Zoysia
		Common Bermuda

Notes:
1. Source: UC Cooperative Extension Leaflet 2995.
2. ECe is the electrical conductivity of the soil saturation extract.

Table B-3: Relative Salt Tolerance of Ornamentals

Low (ECw 0.75 to 1.5 mmhos/cm)	Moderate (ECw 1.5 to 3.0 mmhos/cm)	High (ECw >3.0 mmhos/cm)
Acacia longifolia	Juniperis chinensis	Araucania heterophyllea
Cotoneaster horizontalis	Melaleuca quinquenervia	Arctotheca calendula
Leptospermum laevigatum	Raphiolepsis indica	Baccharis pilularis
Pachysabdra terminalis	Agave attenuta	Coprosma repens
Photinia fraseri	Casuarina equisetifolia	Cortaderia selioana
Pinus halapensis	Hakea suaveolens	Delosperma alba
Rhamnus alatemus	Phonium tenax	Drosanthemum hispidum
Strelitzia reginae	Pittosporum phillyraeoides	Gazania aurantiacum
Vinca minor		Lampranthus spectablis
Limonium perezii		Phyla nodilflora
Puncia granatum		Myoporum laetum
Crassula argentea		Myoporum parvifolium
Festuca ovina		Pittosporum crassifolium
Juniperus scoputorum		
Felicia aethiopica		

Notes:
1. Source: UC Cooperative Extension Leaflet 2995.
2. ECw is the electrical conductivity of the irrigation water.

Table B-4: Relative Salt Tolerance of Ornamental Shrubs and Ground Covers

Low (ECw 0.75 to 1.5 mmhos/cm)	Moderate (ECw 1.5 to 3.0 mmhos/cm)	High (ECw >3.0 mmhos/cm)
Trachelospermum jasminoides	Pittosporum tobira	Nerium oleandar
Feijoa seliowiana	Viburnum tinus	Pyracantha crenatoserrata
Llex cormuta	Ligustrum lucidum	Rosmarinus officinalis
Rosa sp.	Lantana camara	Cordyline endiva
Hedera canariensis	Buxus microphylla	Euonymus japonica
Hibiscus rosa-sinensis	Xylosma congestum	Carissa grandiflora
Nandina domestica	Platycladus orientalis	Bougainvillea spectablis
	Dodonaea viscosa	
	Elaeagnus pungens	
	Juniperus chinensis	
	Callistemon viminalis	

Notes:
1. Source: UC Cooperative Extension Leaflet 2995.
2. ECw is the electrical conductivity of the irrigation water.

Table B-5: Boron Tolerance of Agricultural Crops

Sensitive 0.5 - 1.0 mg/l	Semi Tolerant 1.0 - 2.0 mg/l	Tolerant 2.0 - 4.0 mg/l
Lemon	Lima Bean	Carrot
Orange	Sweet Potato	Lettuce
Apricot	Bell Pepper	Cabbage
Peach	Tomato	Onion
Cherry	Field Pea	Cantaloupe
Grape	Radish	Celery
Apple	Sweet Pea	Cauliflower
Pear	Potato	Broccoli
Plum		
Navy Bean		
Walnut		
Almond		

Notes:
1. Source: Adapted from USDA Technical Bulletin No. 448.
2. In each group the plants named first are considered as being more sensitive and those named last more tolerant.

Table B-6: Boron Tolerance of Ornamental Plants

Boron Injury Threshold Level				
V. Sensitive (<0.5 mg/l)	Sensitive (0.5 to 1.0 mg/l)	Mod. Sensitive (1.0 to 2.0 mg/l)	Mod. Tolerant (2.0 to 4.0 mg/l)	Tolerant (6.0 to 8.0 mg/l)
Mahonia aquifolium	Zinia elegahus	Gladiolus sp.	Callistemon Citrinus	Raphiolepis indica
Photinia X fraseri	Viola tricolor	Calendula officinalis	Eschscholzia Californica	Carissa grandiflora
Xylosma congestum	Viola odorata	Euphorbia pulcherrima	Buxus microphylla	Oxalis bowiei
Elaeagnus pungens	Delphinum sp.	Callistephus chinensis	Nerium Oleander	
Viburnum tinus	Abelia x grandiflora	Gardenia sp.	Hibiscus rosa-senensis	
Ligustrum japonicum	Rosmarinus officinalis	Podocarpus marcophyllus	Lathyrus odoratus	
Feijoa sellowiana	Platycladus orientalis	Syzygium paniculatum	Dianthus caryophyllus	
Euonymus japonica	Pelargonium x hortorum	Cordyline indivisa		
Pittosporum tobria		Leucophyllus frutescens		
Llex cornuta				
Juniperis chinensis				
Lantana camara				
Ulmus americana				

Notes:
1. Source: E.V. Maas, U.S. Salinity Laboratory, Riverside, CA.

Table B-7: Guidelines for Interpretation of Water Quality for Irrigation

Problem and Related Parameters	Units	Water Quality Guidelines		
		No problem	Increasing Problems	Severe Problems
Salinity[a]				
Electrical Conductivity	mmhos/cm	<0.75	0.75 – 3.0	>3.0
Total Dissolved Solids	mg/l	<480	480 – 1,920	>1,920
Permeability				
Adjusted SAR/Rna[b]	units	<6.0	6.0 – 9.0	>9.0
Specific ion toxicity from root absorption[c]				
Adjusted SAR/RNa	units	<3.0	3.0 – 9.0	>9.0
Chloride	mg/l	<142	142 - 355	> 355
Boron	mg/l	<0.5	0.5 – 2.0	2.0 – 10.0
Foliar absorption – Sprinklers[d]				
Sodium	mg/l	<69	>69	---
Chloride	mg/l	<106	>106	---
Miscellaneous				
HCO_3 (Sprinklers)	mg/l	<90	90 - 520	>520
NH_4-N and NO_3-N	mg/l	<5	5 - 30	>30

Notes:

1. Source: Ayers, 1977.

Footnotes:

a. Assumes water for crop plus needed water for leaching requirement will be applied.

b. The adjusted SAR (adjusted sodium adsorption ratio) is calculated from an equation developed by U.S. Salinity Laboratory to include added effects of precipitation and dissolution of calcium in soils and related to carbonate/bicarbonate concentration. The adjusted SAR is defined as follows:

Adjusted SAR = $[Na/\sqrt{(Ca+Mg)/2}]*[1+(8.4 - pH_c)]$

Cation concentrations are expressed in meq/l and pH_c is calculated using tables that relate to the concentration values from the water analysis. Permeability problems, related to low EC or high adjusted SAR of water, can be reduced if necessary by adding gypsum. Usual application rate per acre-foot of applied water is from 200 to about 1,000 pounds. 234 pounds of 100% gypsum added to 1 acre-foot of water would supply 1 meq/1 of calcium and raise the EC about 0.1 mmhos.

c. Most tree crops and woody ornamentals are sensitive to sodium and chloride. Most annual crops are not sensitive.

d. Leaf areas wet by sprinklers may show a leaf burn due to sodium or chloride absorption under low humidity/high-evaporation conditions.

Appendix C

Brine Disposal Unit Cost Analysis

Brine Disposal Unit Cost Calculations

Assume that the reverse osmosis process has an efficiency of 85%, i.e. 15% of the influent flow goes to brine which is sent to evaporation ponds for disposal.

Evaporation rate = 36 in/year = 3 ft/year

(1 acre) x (43560 ft^3/acre-foot) x (3 feet/year) x (7.48 gal/ft^3) = 977,500 gal/year/acre of evaporation

For a nominal 1 mgd system (0.15 mgd of brine), operating 180 days per year:

(27,000,000 gallons of brine/year) x (1 acre/977,500 gallons) = 27.6 acres

Costs:

Land – (35 acres) x ($15,000/acre) = $525,000
Earthwork – (30 acres) x ($5000/acre) = $150,000
Surface Prep – (30 acres) x ($5000/acre) = $150,000
Liner – (30 acres) x (43560 sf/acre) x ($2/sf) = $2,610,000
Site work allowance = $300,000

Total construction cost per mgd = **$3,650,000**

Appendix D

Detailed Cost Estimate

RMC
Water and Environment

Project: SBCWD Regional Recycling Project

Aspect: Recommended Project - Phase 1

Estimate Type: Feasibility Study

Date: May 2, 2005
Project Number: 076-003

Prepared by: MPV
Checked by:
Check Date:

Element	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
Treatment/Pumping/Storage							**$ 3,600,000**	
	DWTP Pump Station	17.8	MGD	1800	HP	$ 2,000	$ 3,600,000	4 x 300 HP duty, 1 x 300 HP standby
Conveyance							**$ 6,376,630**	
	Distribution Pipes						**$ 4,611,800**	
	DWTP to Point A	33	IN	9450	LF	$ 165	$ 1,559,250	
	Point A to Point B	30	IN	8150	LF	$ 150	$ 1,222,500	
	Point B to Conn. w/ existing	27	IN	6650	LF	$ 135	$ 897,750	
	Laterals	12	IN	8550	LF	$ 60	$ 513,000	
	Appurtenances					10%	$ 419,250	
	CVP Blend Water Pipe						**$ 1,364,900**	
	Hollister Conduit to DWTP	24	IN	9590	LF	$ 120	$ 1,150,800	
	Bore & Jack Crossing of SR156	30	IN	150	LF	$ 600	$ 90,000	Casing is 6" larger than carrier pipe
	Appurtenances					10%	$ 124,080	
	Turnouts			40	EA	$ 10,000	$ 400,000	Assumption on number of turbouts
Misc.							**$ 25,000**	
	Break Blue Valve distribution system			1	LS	$ 25,000	$ 25,000	

FACILITY RAW CONSTRUCTION COST	**$**	**10,000,000**
Construction Contingency	**$**	**3,000,000**
Pipeline Right of Way	**$**	**40,000**
Engineering, Legal, Administrative and Environmental	**$**	**3,300,000**
TOTAL CAPITAL COST	**$**	**16,340,000**
Annualized Capital Cost	**$**	**1,063,000**
Pipeline O&M Costs	$	41,000
Pump Station O&M Costs	$	117,000
Energy Costs	$	232,000
Total Annual O&M Costs	**$**	**390,000**
Total Annual Project Cost	**$**	**1,453,000**
Annual Recycled Water Demand		**5,280** **AFY (@700 mg/L TDS recycled water)**

RMC
Water and Environment

Project: SBCWD Regional Recycling Project

Aspect: Recommended Project - Phase 2

Estimate Type: Feasibility Study

Date: May 2, 2005
Project Number: 076-003

Prepared by: MPV
Checked by:
Check Date:

Element	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
Treatment/Pumping/Storage							**$ 2,900,000**	
	Blend Point Pump Station			1200	HP	$ 2,000	$ 2,400,000	4 x 300 HP duty, 1 x 300 HP standby
	Blend Point Reservoir			0.5	Mgal	$ 1,000,000	$ 500,000	
Conveyance							**$ 630,000**	
	Expansion of Distribution System			1	LS	$ 100,000	**$ 100,000**	
	Conveyance to SJB WTP						**$ 530,000**	
	Pipeline	8	IN	12100	LF	$ 40	$ 484,000	
	Appurtenances					10%	$ 48,400	
Misc.							**$ -**	

FACILITY RAW CONSTRUCTION COST	**$**	**3,530,000**
Construction Contingency	**$**	**1,100,000**
Pipeline Right of Way	**$**	**20,000**
Engineering, Legal, Administrative and Environmental	**$**	**1,200,000**
TOTAL CAPITAL COST	**$**	**5,850,000**
Annualized Capital Cost	**$**	**381,000**
Pipeline O&M Costs	$	4,000
Pump Station O&M Costs	$	78,000
Energy Costs	$	366,000
Total Annual O&M Costs	**$**	**448,000**
Total Annual Project Cost	**$**	**829,000**
Annual Recycled Water Demand		**4,140 AFY (@700 mg/L TDS recycled water)**

RECYCLED WATER FEASIBILITY STUDY UPDATE

Recycled Water Feasibility Study Update *November 6, 2008*

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Attachment 1 Mapping Studies
Attachment 2 Site Visit Memorandum

1. Introduction

The San Benito County Water District (SBCWD) completed a Recycled Water Feasibility Study in 2005 to evaluate the use of recycled water in San Benito County (County). Since completion of the 2005 study, several developments have occurred, as discussed in the following subsection, which have necessitated an update of the original study. This update was initiated through a Memorandum of Understanding (MOU), signed in February 2008, between the City of Hollister (City) and SBCWD to develop a Recycled Water Program to implement the beneficial use of treated effluent from the City's new Domestic Wastewater Treatment Plant (DWTP).

This technical memorandum presents the updated recycled water feasibility study, including new conceptual use areas and alternatives which were developed and evaluated, as well as a strategy for implementation. The results of this study will be incorporated into the final Hollister Urban Area Water and Wastewater Master Plan (Master Plan).

1.1. Background

As described in the City's 2005 Long-Term Wastewater Management Program for the DWTP and IWTP (LTWMP), the ultimate goal for effluent management is to provide high quality wastewater effluent suitable for direct reuse on high value, quality sensitive crops. The LTWMP also established that the overall water quality, specifically the salinity content, in the region must be substantially improved to support the goal. To improve water quality and coordinate water and wastewater infrastructure improvements, the City, SBCWD and San Benito County signed an MOU (Master Plan MOU) in 2004 to develop the Hollister Urban Area Water and Wastewater Master Plan. The Master Plan MOU identifies 2015 as the target date for providing high quality (i.e., low salinity) recycled water for agricultural use.

Prior to 2015, effluent management will include continued percolation and landscape irrigation. The period before 2015, marked by high salinity content, is referred to as the Phase I Reclaimed Water Program. After 2015, the salinity content of the recycled water will be reduced to levels acceptable for agricultural use; this period is referred to as the Phase II Recycled Water Program.

The purpose of the 2005 Recycled Water Feasibility Study was to identify a cost effective water recycling project for beneficial use of recycled water beyond 2015. The study focused on recycled water use areas in the San Juan Valley due to the proximity of this area to the City's DWTP. Since the completion of the 2005 study, several significant changes have occurred which serve as drivers for this update, including:

- In 2006 an *Escherichia coli* (*E. coli*) outbreak was linked to uncooked spinach originating in San Benito County. Although the spinach was not irrigated with recycled water, the outbreak drew attention to recycled water as an irrigation supply for high value crops. As a result, irrigators in the San Juan Valley have expressed concern with

regard to using recycled water originating from the DWTP. Therefore, due to the public reaction regarding its use, the feasibility of using this source of recycled water in the San Juan Valley is in question.

- In 2007, a federal court ruled to protect the Delta smelt, which is facing extinction, by limiting the quantities of water pumped out of the Sacramento-San Joaquin River Delta. Consequently, the reliability of future Central Valley Project (CVP) water supplies to the Hollister area is in question throughout the state.
- The original study focused on areas to the west of the DWTP. Since that time, several new areas have been identified as potential locations for recycled water use.

Based upon these changes, the City and SBCWD agreed that an update was required to develop and evaluate additional recycled water alternatives.

1.2. Objectives

The primary objective of this study was to update the Recycled Water Feasibility Study completed in 2005 by including areas and regions not considered in the original study. The original study identified agricultural markets in areas located west of the Hollister Urban Area (HUA) as the primary opportunities for recycled water use; however, it was later determined that these sites should be revisited and updated to investigate additional areas of use such as areas east of the HUA. Estimated costs have been developed for evaluation of alternatives. However, these costs are at a conceptual level for the purposes of comparing alternatives. Detailed facilities studies will be part of later phases of the study work to provide more refined cost estimates. The results of this study will serve as a reference and planning document for finalizing the Master Plan.

Ongoing work by the City and the SBCWD has resulted in a plan for Phase I use of reclaimed water. The Phase I plan will convey reclaimed water from the DWTP to the Brigantino Riverside Park and to the Hollister Municipal Airport for irrigation of open space and landscaping. The focus of this study is Phase II recycled water use, and to a lesser extent, recycled water use at DWTP build-out conditions. A secondary objective was to compare and align (if possible) recommended Phase II site(s) with the two Phase I sites. The purpose of this secondary objective is to minimize recycled water program costs by using Phase I facilities insofar as practical.

It is expected that a subsequent phase of work will follow this study which will provide more detail for facilities planning, market assessment, cost estimates, and related steps for implementation of the Phase II recycled water program.

1.3. Acknowledgements

This study was completed under the terms of a Memorandum of Understanding between the SBCWD and the City. A steering committee composed of elected officials from the two agencies provided overall guidance for the study. The steering committee included Ken Perry

and John Tobias from the SBCWD and Monica Johnson and Doug Emerson from the City. Mr. Harry Blohm of the SBCWD provided day-to-day program management. Mr. Lance Johnson provided input from the SBCWD. Mr. Clint Quilter and Mr. Steve Wittry provided input from the City.

1.4. Abbreviations

AF	acre-feet
AFY	acre-feet per year
CDPH	California Department of Public Health
County	San Benito County
City	City of Hollister
CVP	Central Valley Project
DWTP	Domestic Wastewater Treatment Plant
HUA	Hollister Urban Area
lf	linear feet
Master Plan	Hollister Urban Area Water and Wastewater Master Plan
mg/l	milligrams per liter
MGD	million gallons per day
MOU	Memorandum of Understanding
psi	pounds per square inch
PVC	polyvinyl chloride
SBCWD	San Benito County Water District
SSCWD	Sunnyslope County Water District
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids

2. Planning Assumptions

This section summarizes the basic information which was used to update the recycled water feasibility study, including the study planning period, planning assumptions with respect to the projected recycled water flows and water quality available from the City's upgraded DWTP, the general area of potential sites for recycled water use as well as the irrigation applications which will be considered, the basis for economic analyses, and other relevant assumptions.

2.1. Planning Period

The planning period for this study extends 15 years, from 2008 to 2023. The initial year of the planning period was selected to provide a common baseline date for existing data such as land use, as well as economic analysis of alternatives. The final year of the planning period coincides with the planning horizon of the Master Plan, the General Plan of the City of Hollister, and the end of Phase II as defined below.

2.2. Recycled Water Flow Rates and Phasing

DWTP recycled water production will steadily increase over time, until the build-out condition is reached, as illustrated in Figure 2-1. During Phase I, which is generally considered to be the period between now and 2015, recycled water production will increase from 0 to 772 acre-feet per year (AFY). During the Phase I period, reclaimed water will be used for irrigation at the Hollister Municipal Airport and the new Riverside Park; additionally the DWTP will continue to operate percolation ponds for additional effluent disposal.

Phase II, the focus of this study, will include a significant reduction in recycled water total dissolved solids (TDS) concentration. The precise reduction will depend upon a variety of factors including groundwater demineralization, blending using low TDS water such as CVP water, and a water softener ordinance (see section 2.3). Once this reduction is accomplished, recycled water demand is expected to dramatically increase as this resource will then be suitable for irrigation of high value crops.

Recent estimates by the City indicate that in 2017, approximately 3.75 million gallons per day (MGD) (equivalent to 4,200 AFY) of recycled water will be available for beneficial reuse, increasing up to 4.5 MGD (5,040 AFY) in 2023. There may be some opportunity to continue percolation at the DWTP up to approximately 840 AFY. Therefore, this study uses 4,200 AFY as the minimum quantity of recycled water available for beneficial reuse in identifying potential Phase II recycled water use areas. However, up to 5,040 AFY may be available in 2023 and was considered in the evaluation of potential Phase II recycled use areas.

Moreover, as the DWTP reaches capacity, it can be expanded by an additional 3 MGD resulting in an additional 3,360 AFY for a total potential ultimate recycled water quantity of 8,400 AFY. Therefore, the ability to expand potential Phase II recycled use areas to accommodate this additional flow was considered during the evaluation process.

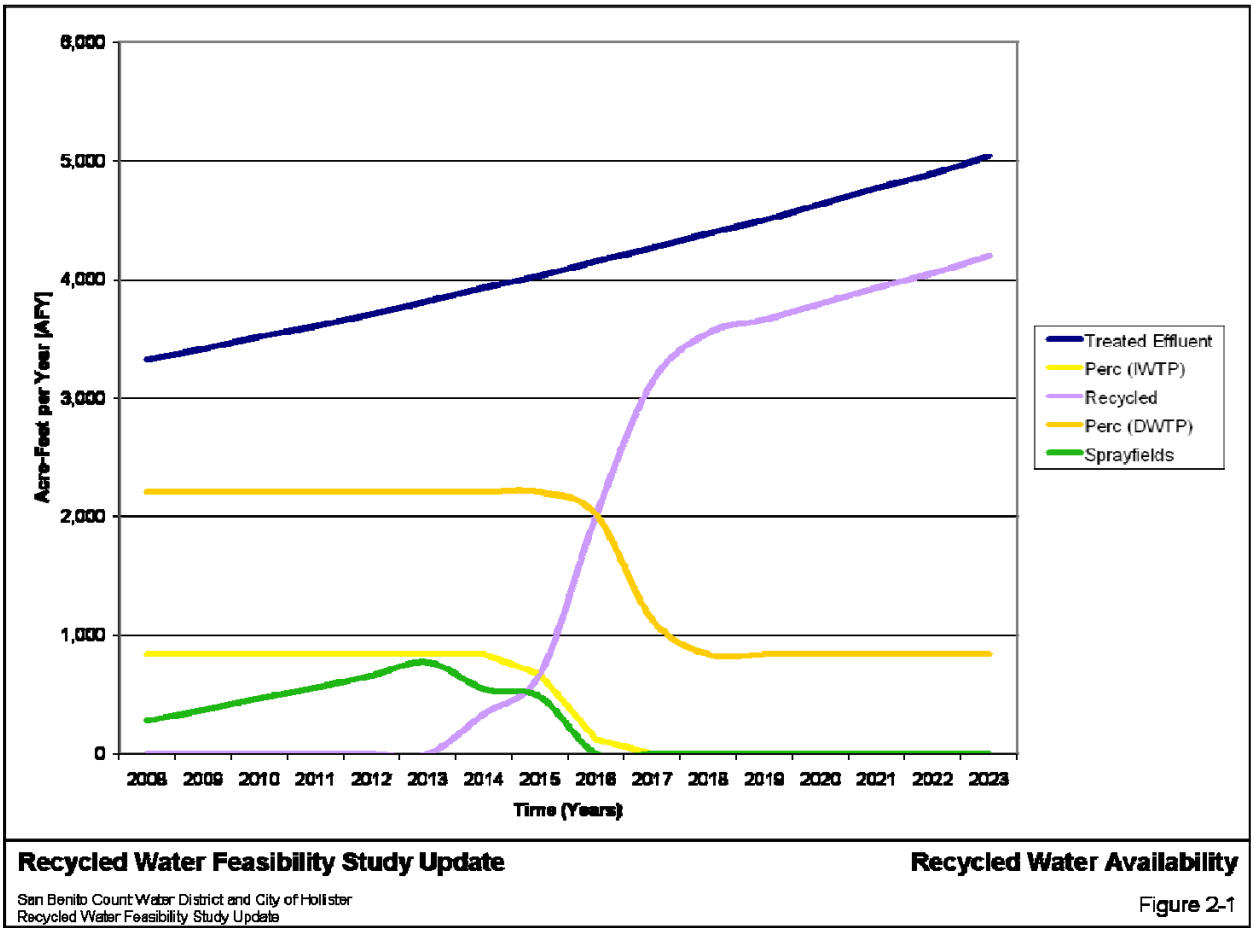


Figure 2-1 Recycled Water Availability

2.3. Water Quality

Recycled water from the DWTP will meet Title 22 requirements for tertiary treated recycled water, as described in the LTWMP.

The MOU established water quality objectives for recycled water. Specifically, the MOU states that "recycled water shall have a target Total Dissolved Solids (TDS) of 500 mg/l and shall not exceed 700 mg/l." Furthermore, the MOU states that blending recycled water with CVP water is only an interim measure for achieving recycled water quality objectives. Due to the uncertainty regarding CVP availability and the high costs of demineralization, the potential use of long-term blending was considered as part of this study.

2.4. Potential Study Sites

As previously mentioned, the original study focused on areas located west of the HUA as the primary opportunities for recycled water use. The San Juan Valley service area was identified

as the most attractive agricultural reuse site; therefore, it will be included in this study to serve as a baseline and a point of comparison to the original study. The following five general areas were initially identified for further evaluation and inclusion as potential Phase II recycled water use areas (see Figure 2-2):

- Areas Adjacent to Airport
- East of Fairview Road
- San Juan Valley
- Santa Ana Valley
- Tres Pinos Area

2.5. Basis of Cost Estimates

Preliminary cost estimates were developed for each alternative, including the present worth of both capital costs and operations and maintenance costs. Allowances include contingency (30 percent) and engineering, administration and permitting (20 percent). All cost estimates are presented in current dollars and based on a discount rate of 3 percent and a 20-year analysis period. The estimates are based on the ENR Construction Cost Index for the San Francisco Bay Area for January 2008, which is 9133.

2.6. Other Assumptions

Sunnyslope County Water District (SSCWD) has recently completed an evaluation to determine whether to convey wastewater to the DWTP or to maintain separate treatment facilities in the Ridgemark community. At this time, SSCWD has decided to maintain and upgrade their existing treatment facilities. As described in the LTWMP, the estimated wastewater contribution from SSCWD is approximately 0.25 mgd in 2008, increasing to 0.46 mgd in 2023. However, since the SSCWD project is not yet complete and conditions may change in the future, the previously identified flows (including those from SSCWD) were used for this planning study.

A large vegetable processing facility in San Juan Valley is currently developing plans to produce approximately 400 AFY of recycled wash water. It is expected that this recycled wash water will be redistributed for irrigation purposes in the San Juan Valley. This value was considered in determining the appropriate water demand in the San Juan Valley.

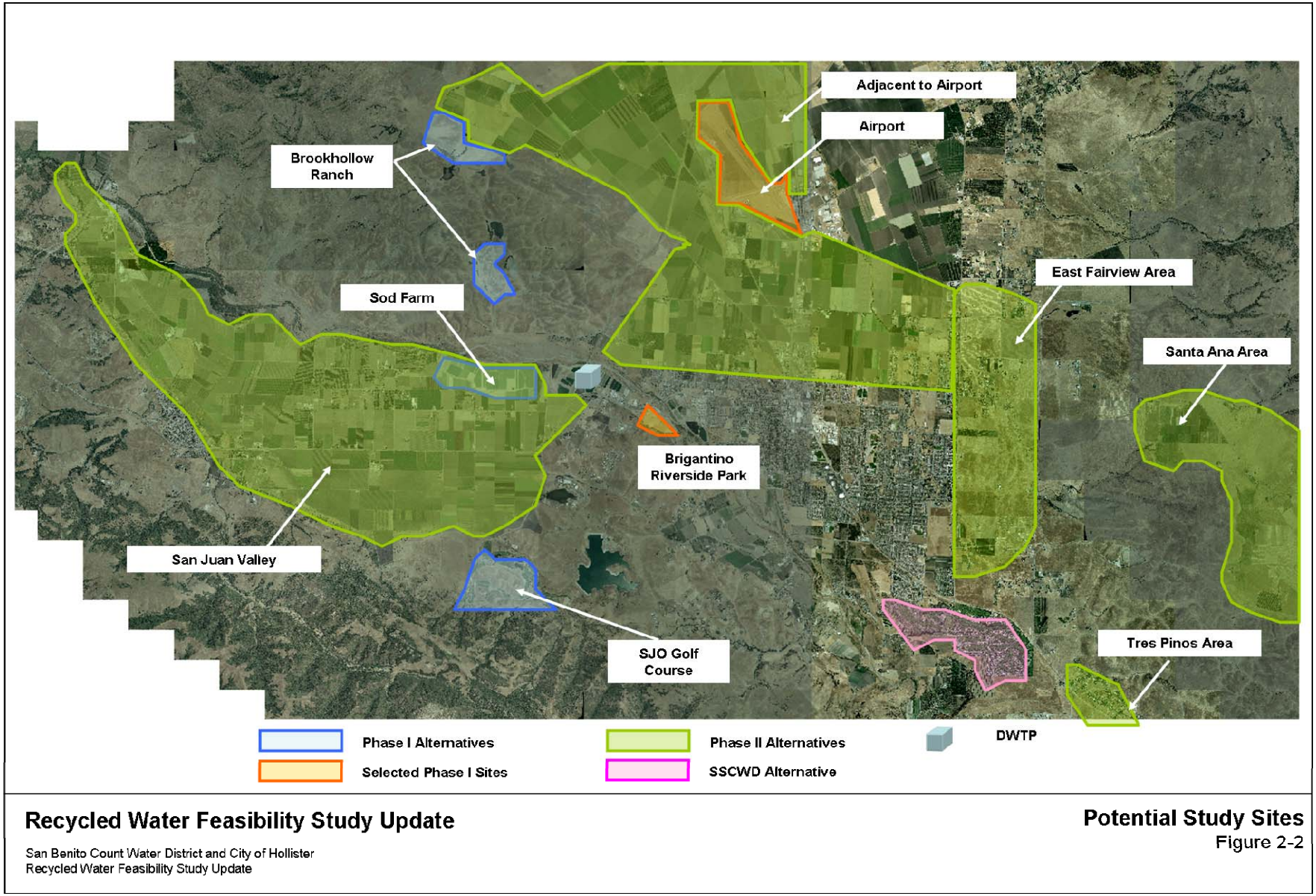


Figure 2-2 Potential Study Sites

3. Identification of Potential Recycled Water Use Areas

As described in the previous section and as shown in Figure 2-2, five general areas were originally identified as potential Phase II Alternative study sites. These areas were preliminarily evaluated and refined through a series of mapping studies and a site visit which are described in more detail below.

3.1. Mapping Studies

As previously described, the targeted uses for recycled water are agricultural irrigation and urban irrigation, to include irrigation of parks, commercial and public areas, as appropriate, in addition to new residential developments. To evaluate the suitability of the five general areas for recycled water use, the following characteristics were mapped:

- Land use
- Soil type
- Depth to groundwater
- Topography
- Known environmental constraints (i.e., location of Tiger Salamander habitats)
- Location of current CVP water users

These maps are included as Attachment 1. Analysis of these maps revealed that the general areas identified as potential study sites are viable considering most characteristics. However, several points of concern were also identified. First, the area east of Fairview Road has been identified as a habitat area for the California Tiger Salamander, a threatened species. Therefore, it is expected that additional environmental studies and permitting would be required to develop this area for recycled water use. Secondly, the San Juan Valley area is known to have high groundwater levels which was confirmed by the depth to groundwater map; furthermore, the depth to groundwater map also indicated that the area north of the airport also has high groundwater and could be problematic for agricultural recycled water use. Finally, the various maps revealed that the areas east of Fairview Road and the Santa Ana Valley are largely undeveloped with respect to agriculture, whereas the area near the airport and the San Juan Valley have extensive agricultural developments. This results in two concerns. First, to implement a recycled water project for the latter areas the land owner/operator must be willing to switch from a current water supply (e.g., CVP or groundwater) to recycled water. Second, the former sites (i.e., east of Fairview Road and Santa Ana Valley) would require the areas to be developed such that recycled water could be beneficially used for agricultural purposes. It should also be noted that the predominant use in the Tres Pinos area would be residential and urban landscape irrigation.

Following the initial analysis of characteristics on an individual basis, a second map was developed to identify areas suitable for irrigation based on aggregated characteristics. This

map, shown in Figure 3-1, illustrates those areas which are suitable for irrigation based on an aggregation of the following characteristics:

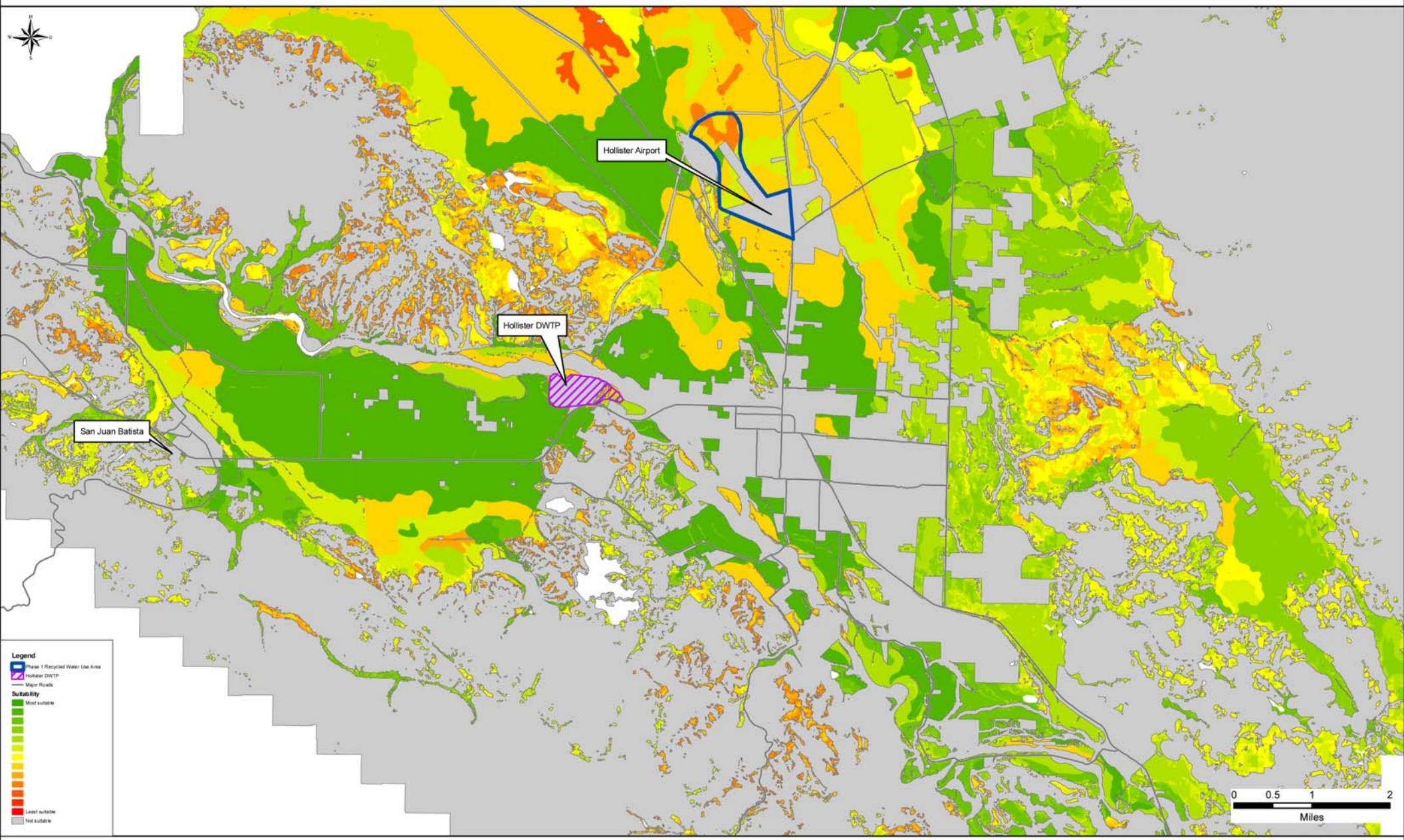
- Land slope
- National Resources Conservation Service land capability class
- Soil texture in the root zone
- Available water holding capacity
- Flood frequency
- Hydrologic group (i.e., propensity for runoff versus infiltration)
- Depth to groundwater

As indicated in Figure 3-1, there are suitable areas for irrigation within each of the originally identified potential use sites. Moreover, this figure indicates that the area near Lone Tree Road also has significant area which is suitable for agricultural irrigation. Therefore, in addition to the five originally identified potential use sites, a sixth site was added in the Lone Tree Road area.

3.2. Site Visit

To confirm the viability of each of the potential use sites, a site visit was conducted. A brief report summarizing the site visit events is included as Attachment 2. The site visit revealed the following observations:

- The areas adjacent to the airport being considered for recycled water use should be narrowed to the area south of the airport, specifically to the Wright Road / McCloskey Road (Wright/McCloskey) corridor. This is supported by the presence of high groundwater in the areas north of the airport. The Wright/McCloskey corridor is an existing agricultural area which is predominantly dependent on CVP water for irrigation, although some parcels use groundwater.
- Santa Ana Valley is a favorable site with a potentially high recycled water demand and should be further evaluated for recycled water use. There is some existing agricultural land use in the Santa Ana Valley, which is reliant upon groundwater for irrigation purposes. However, much of the low lying area and the rolling hills remain undeveloped.
- The Lone Tree area is a favorable site with a potentially high recycled water demand and should be further evaluated for recycled water use. The site visit revealed large areas south of Lone Tree Road are being developed for agricultural use. It is currently assumed that these areas will be irrigated with groundwater. Large areas north of Lone Tree Road, as well as some rolling hills remain undeveloped and appear to be suitable for development for agricultural purposes.



Recycled Water Feasibility Study Update

Suitability for Irrigation
Figure 3-1

- The areas suitable for irrigation around Tres Pinos are piecemeal in nature, and include large residential estate lots, a future college site and possibly a golf course. Due to this piecemeal nature, the Tres Pinos area is a less favorable site for a recycled water project. However, the future college site could potentially be served separately, as a part of an east of Fairview Road project.
- The existing CVP line in McCloskey/Wright Roads should be further evaluated for recycled water use and potential phasing and blending opportunities.

4. Conceptual Use Area Alternatives

Based upon the mapping studies and site visit described in the previous section, and as identified in Figure 4-1, six conceptual use areas were developed. These six areas include the following:

- Wright Road / McCloskey Road Corridor
- East of Fairview
- Lone Tree
- Santa Ana Valley
- Tres Pinos
- San Juan Valley

The common infrastructure requirements and assumptions used to develop them, as well as a description of each alternative are provided in the following subsections.

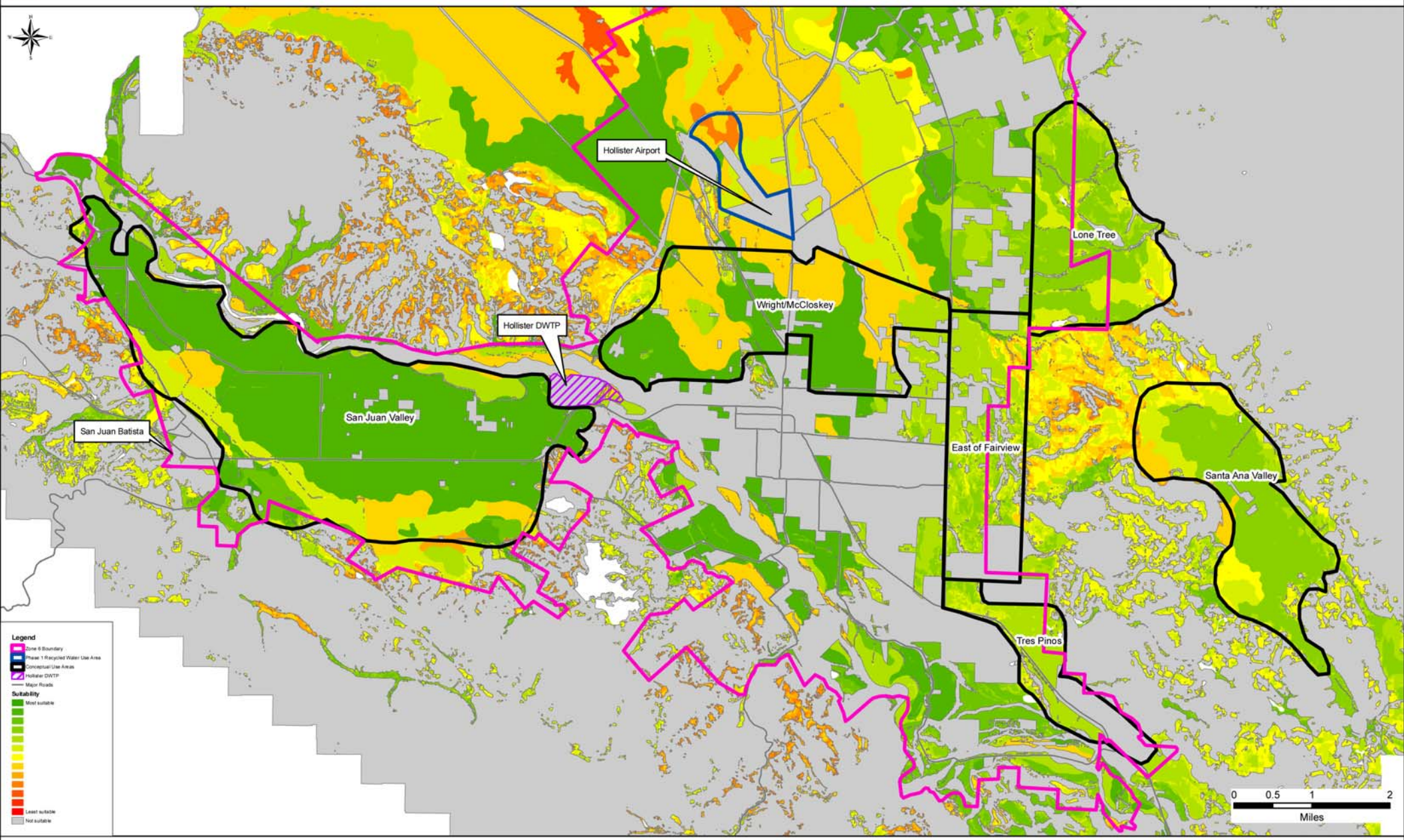
4.1. Conceptual Infrastructure Requirements

Recycled water delivery options were developed for each of the conceptual use area alternatives, including preliminary pipeline alignments and anticipated infrastructure such as booster pump stations and storage tanks. It is assumed that distribution pipelines will generally follow existing roadways and will be installed just off the road to minimize disruption of the traffic.

Figure 4-2 illustrates the preliminary pipeline alignments that could be used to distribute the recycled water to each of the conceptual use areas and which were used to develop cost estimates for service to each of the conceptual use areas.

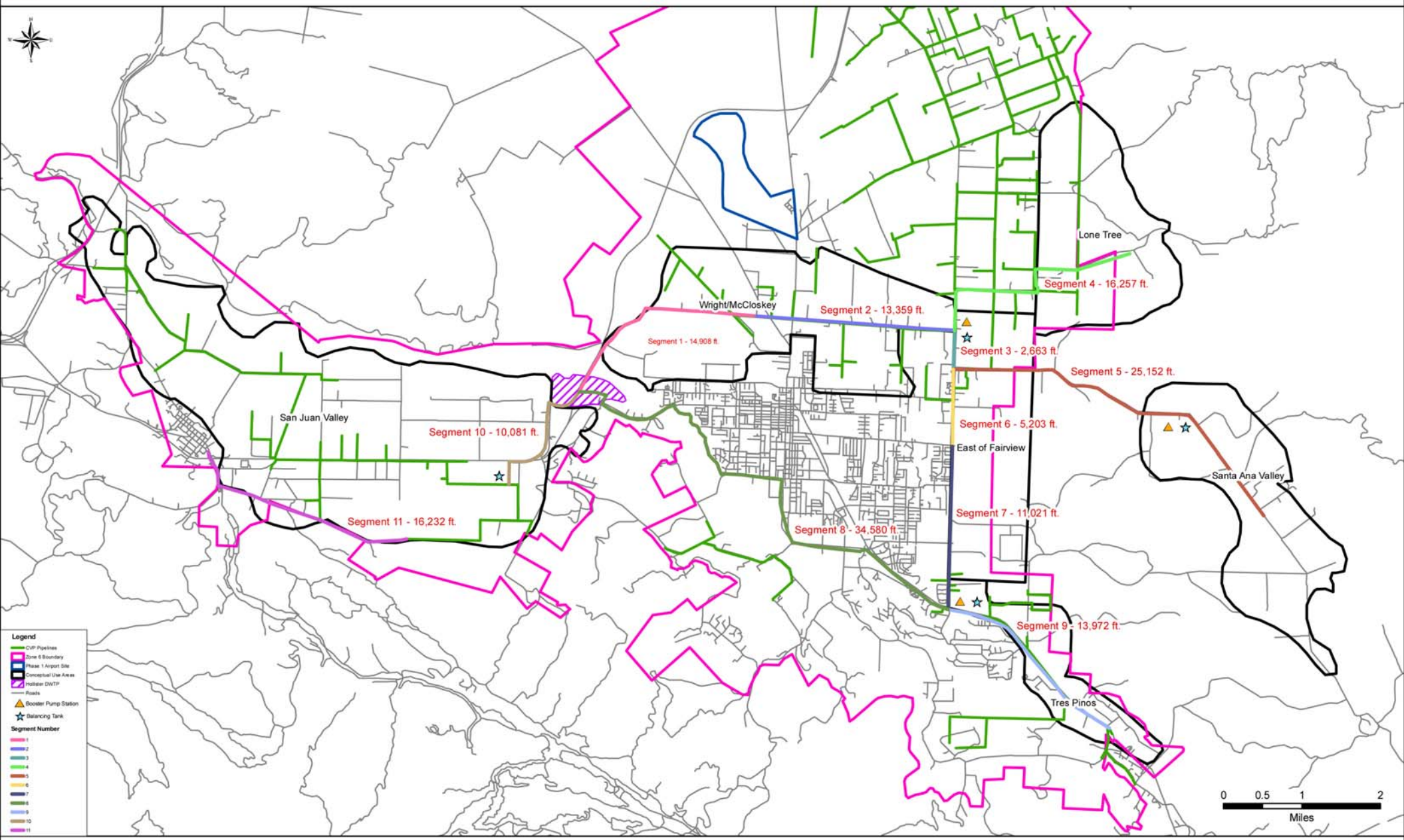
Due to the long distances between the DWTP and some of the conceptual use sites, booster pump stations may be required in addition to the pumping station at the DWTP to limit the pressure in the pipelines. The typical maximum allowable pressure in PVC pipe is approximately 140 pounds per square inch (psi). For the purposes of developing cost estimates for pumping requirements, it has been assumed that a delivery pressure of 5 psi will be provided and recycled water will be pumped 24 hours per day during the irrigation season (assumed to be six months).

All distribution pipelines are assumed to be 20-inch diameter PVC pipes. Considering an average pumping rate of 7.5 mgd, this results in a velocity of 5.3 feet per second (fps). Based upon preliminary water balance information included in the City's LTWMP, during peak demand periods, the demand for recycled water could reach 9.6 mgd, resulting in a velocity of 6.8 fps. The water balance and resulting estimates will be reevaluated during Facilities Planning, as described further in Section 6.



Recycled Water Feasibility Study Update

Conceptual Use Area Alternatives
Figure 4-1



Recycled Water Feasibility Study Update

Preliminary Pipe Alignments and Support Infrastructure
Figure 4-2

It has been assumed that some form of terminal storage will be required for each conceptual use area to offset peak demand periods, provide some storage capacity on-site in the event that pumping stations are taken off-line, and minimize pipeline infrastructure and pumping costs through a reduction in pipeline diameter and twenty-four hour continuous pumping. For Alternatives 1 and 6, as described below, it is assumed that a 5 mg balancing tank will be required. This provides approximately 12-15 hours of capacity during average demand periods. The remaining alternatives would have a smaller balancing tank, 0.5 mg, collocated with a booster pump station. Additionally, Alternatives 2, 3, 4, and 5 would have a 50 AF earthen reservoir on-site, which would provide approximately 2 days of capacity during average demand periods. Currently, the City plans to have an 800 AF seasonal storage reservoir at the DWTP. The need for additional on-site and/or seasonal storage will be reevaluated as part of Facilities Planning.

4.2. Alternative 1 – Wright / McCloskey Corridor

The areas considered in this alternative include sites north and south of the Wright Road/McCloskey Road (Wright/McCloskey) corridor. A recycled water irrigation project in this area could make use of the Phase I recycled water project conveyance infrastructure to the Hollister Municipal Airport site. The City and SBCWD agreed to construct the Phase I pipeline up to the intersection of Wright Road and Briggs Road as a 20-inch diameter pipeline, such that it would be capable of conveying expected Phase II flowrates in the future. Additionally, a tee will be installed at that intersection to facilitate the extension of the 20-inch diameter pipeline along the Wright/McCloskey corridor in the future. Including the Phase I pipeline section (approximately 12,710 lf), an estimated total 28,270 linear-feet (lf) of 20-inch diameter pipeline would be required for this alternative.

As previously noted, this area has existing agricultural land use. There is an existing CVP distribution line in McCloskey Road which distributes irrigation water to many of the parcels in the area. However, on the south side of Wright Road, as depicted in Figure 4-3, groundwater is used for irrigation purposes. The TDS content of groundwater in that area is relatively high.

At this time, specific customers have not been identified. However, since the potential customers in this area have an existing irrigation water supply, formal agreements would need to be reached to ensure the customers are willing to receive and use recycled water. As previously described, a delivery pressure of 5 psi has been assumed for the purposes of preparing preliminary cost estimates; however, the need to provide a higher delivery pressure (e.g., 70 psi for spray irrigation) will be reevaluated as part of the Facilities Plan.

Table 4-1 shows the total area suitable for irrigation in Alternative 1. Based on an average application rate of 2.25 AF/Acre for recycled water demand, the total annual water demand in the area is 7,180 AF, which is well above the Phase II recycled water availability of 4,200 AFY.

Figure 4-3 Alternative 1, Wright McCloskey Corridor

Table 4-1 Alternative 1 Irrigable Area and Potential Recycled Water Demand

Total Area [Acres]	Area Suitable for Irrigation [Acres]	Potential Recycled Water Demand [a] [AFY]
3,600	3,190	4,785 – 9,570

(a) – Based on a typical range of agronomic application rates for the Hollister Urban Area, 1.5 AF/Acre – 3.0 AF/Acre

A key benefit associated with this alternative is that it provides the opportunity for phasing such that recycled water distribution could begin in this area and move further east toward Alternatives 2, 3 or 4, thereby reducing the associated cost of their required infrastructure.

4.3. Alternative 2 – East of Fairview Road

The area considered in this alternative includes the 2,200 acres east of Fairview Road and south of McCloskey as depicted in Figure 4-1. Similar to Alternative 1, this alternative could make use of the Phase I distribution pipeline in Wright Road. Depending on whether or not the future college site at the intersection of Fairview Road and Airline Highway would be included in this alternative, the total pipeline length required to serve the area east of Fairview Road is estimated to be between 36,130 lf without the college to 47,150 lf with the college. In addition, a booster pump station would be required to maintain reasonable pressure in the pipelines. As was shown in Figure 4-2, a likely location for such a facility is at the intersection of McCloskey Road and Fairview. A 0.5 mg regulating tank would accompany the booster pump station.

The area considered in this alternative is largely undeveloped. However, portions of this area are included in the City's planning area for future development. If this area is developed in the future for residential, commercial or industrial purposes, the area available for an agricultural development will be limited. Thus, this area may be more suitable as an interim recycled water use area.

Since there is limited or no existing agricultural land use in the conceptual use area, potential landowners and customers would need to be identified who are interested in developing an agricultural site in the area to ensure this alternative is a viable site for a recycled water irrigation project. At the time of this report, no such landowners or customers had been identified for this alternative.

Table 4-2 shows the total area suitable for irrigation in Alternative 2. Based on an average irrigation application rate of 2.25 AF/Acre for recycled water demand, the total annual water demand in the area is 3,310AF which is below the 4,200 AFY production. Thus, this alternative would need to be combined with another alternative.

Table 4-2 Alternative 2 Irrigable Area and Potential Recycled Water Demand

Total Area [Acres]	Area Suitable for Irrigation [Acres]	Potential Recycled Water Demand [a] [AFY]
2,200	1,470	2,205-4,410

(a) – Based on a typical range of agronomic application rates for the Hollister Urban Area, 1.5 AF/Acre – 3.0 AF/Acre

The main obstacle associated with this alternative is the presence of the California Tiger Salamander, as noted in the previous section. It is expected that additional time would be required for permitting and a more extensive EIR process may be required. Any additional costs of mitigation measures due to the presence of the California Tiger Salamander have not been quantified at this time, although they are expected to be significant.

4.4. Alternative 3 – Lone Tree Road

This alternative generally consists of the areas north and south of Lone Tree Road, and east of the existing CVP-supplied agricultural developments as depicted in Figure 4-1. This alternative could make use of the Phase I transmission pipeline in Wright Road. Similar to Alternative 2, a booster pump station and balancing tank would be required to maintain suitable pressure in the distribution pipeline. The total pipeline length required to convey recycled water from the DWTP to the Lone Tree area is approximately 44,520 lf.

As previously described, a large plot of land south of Lone Tree Road has recently been developed for agricultural use. However, the north side of Lone Tree Road is undeveloped. The new agricultural development will likely use groundwater for irrigation. The groundwater quality in that particular area is expected to be relatively high due to its proximity to Arroyos de Pichacos.

Table 4-3 shows the total area suitable for irrigation in Alternative 3. Using an average irrigation application rate of 2.25AF/Acre for recycled water demand, the total annual water demand in the area is 5,150 AF, which is well above the Phase II recycled water availability of 4,200 AFY.

Table 4-3 Alternative 3 Irrigable Area and Potential Recycled Water Demand

Total Area [Acres]	Area Suitable for Irrigation [Acres]	Potential Recycled Water Demand [a] [AFY]
2,450 [b]	2,290 [b]	3,435 - 6,870

(a) Based on a typical range of agronomic application rates for the Hollister Urban Area, 1.5 AF/Acre – 3.0 AF/Acre
(b) Does not include the area to the south of the Lone Tree area which could be suitable for viticulture

Although Alternative 3 is located a relatively long distance from the DWTP, this area provides the ability to develop new agricultural lands. Moreover, the hills located to the south of the Lone Tree area could potentially be developed for viticulture, further increasing the potential recycled water demand. This opportunity will be further investigated in the Facilities Planning and Market Assessment studies discussed in Section 6.

4.5. Alternative 4 – Santa Ana Valley

Alternative 4 includes the agricultural opportunities in the Santa Ana Valley. The Santa Ana Valley is located east of Hollister and is separated from Hollister by a range of foothills. There are several plots on the valley floor which are currently cropped; however there are additional areas in the valley, including the foothills to north of the valley, which could be developed for agricultural use. Landowners in the valley have expressed interest in receiving and using recycled water for irrigation purposes. There is particular interest in using recycled water for viticulture in the northern end of Santa Ana Valley (although this has not been included in the potential recycled water demand in Table 4-4).

Similar to Alternatives 2 and 3, this alternative could make use of the Phase I distribution pipeline in Wright Road. Due to the distance and elevation change between the DWTP and Santa Ana Valley, two booster pump stations would be required to maintain suitable pressure in the distribution pipeline. The total pipeline length required to convey recycled water from the DWTP to Santa Ana Valley is approximately 56,080 lf.

The only existing water source in the valley is groundwater. Although a groundwater model of the valley is not yet developed, recent well tests indicated the depth to the groundwater is 50 to 60 feet in the valley. However, along Santa Ana Creek, the calculated groundwater elevation was close to the elevation of the nearest point on Santa Ana Creek. This suggests that the water table intersects with the ground surface at the creek and that shallow groundwater would be present in low areas near the creek. Based on this information, it is expected that a buffer zone would need to be observed in the low lying areas near Santa Ana Creek, such that recycled water does not freely enter the watercourse.

Preliminary investigations indicate the water quality in Santa Ana Valley is approximately 800 TDS, which is substantially below the Groundwater Basin Plan objective of 1,200 TDS.

Table 4-4 shows the total area suitable for irrigation in Alternative 4. Using an average irrigation application rate of 2.25 AF/Acre for recycled water demand, the total annual water demand in the area is 5,690 AF, well above the Phase II recycled water availability of 4,200 AFY.

Table 4-4 Alternative 4 Irrigable Area and Potential Recycled Water Demand

Total Area [Acres]	Area Suitable for Irrigation [Acres]	Potential Recycled Water Demand [(a)] [AFY]
2,620 [(b)]	2,530 [(b)]	3,745 - 7,590

(a) Based on a typical range of agronomic application rates for the Hollister Urban Area, 1.5 AF/Acre – 3.0 AF/Acre
(b) Does not include area to the north of the valley which could be suitable for viticulture

In addition to the suitable area indicated in Table 4-4, the rolling hills to the north of the valley could be suitable for viticulture, thereby increasing the potential demand for recycled water in this alternative.

In addition to creating new agricultural lands in the region, potential users have expressed interest in receiving and using recycled water for agricultural purposes including participating in cost sharing for some distribution facilities. Moreover, one potential user has indicated higher TDS levels may be acceptable, possibly as high as 1,200 mg/l. Further studies would be required to determine the threshold TDS limit and the higher groundwater quality in the valley should also be considered in this case due to the potential for degradation.

4.6. Alternative 5 – Tres Pinos

Alternative 5 includes areas in and near the town of Tres Pinos, including the Stonegate master-planned community and the future college site at the intersection of Fairview Road and Airport Highway. The Ridgemark Golf Course could also be included in this alternative.

Two alternative pipeline alignments have been identified to convey recycled water to the Tres Pinos area, they are 61,130 and lf 48,550 lf respectively. As illustrated in Figure 4-2, the former could take advantage of the Phase I conveyance infrastructure, passing through conceptual use area Alternatives 1 and 2 before reaching the Tres Pinos site, whereas the latter would require an independent pipeline be installed. Due to the length of the conveyance pipeline required to reach Tres Pinos, two booster pump stations would be required to provide recycled water in this area.

A recycled water irrigation project in this area could consist of residential and municipal irrigation, as well as well as irrigation of the Ridgemark Golf Course. The Stonegate community is made up of five-acre residential parcels which currently use CVP water for irrigation. It is expected that the CVP irrigation distribution network could be converted to recycled water, thereby reducing the region's dependence on CVP water. This has a secondary benefit, in that the current fiberglass pipeline in the Airport Highway is associated with frequent breaks which can be attributed, in part, to the high pressures associated with the high demand and flow rates. Replacing CVP irrigation water with recycled water would reduce the required flow rate in the fiberglass pipeline and thereby reduce the stress on the pipeline.

Table 4-5 shows the total area suitable for irrigation in Alternative 5. Based on an average irrigation application rate of 2.25 AF/Acre for recycled water demand, the total annual water demand in the area is 1,580 AF, which is well below the Phase II recycled water availability of 4,200 AFY. Therefore, this alternative would need to be considered in combination with another alternative.

Table 4-5 Alternative 5 Irrigable Area and Potential Recycled Water Demand

Total Area [Acres]	Area Suitable for Irrigation [Acres]	Potential Recycled Water Demand [(a)] [AFY]
1,120	700	1,050 - 2,100

(a) Based on a typical range of agronomic application rates for the Hollister Urban Area, 1.5 AF/Acre – 3.0 AF/Acre

4.7. Alternative 6 – San Juan Valley

Alternative 6 encompasses the existing agricultural developments in the San Juan Valley area. The original feasibility study reported that the annual demand in the San Juan Valley is 11,720 AFY over approximately 5,960 acres. There is an existing CVP distribution network in the San Juan Valley for agricultural use. This alternative assumes that the CVP distribution network would be converted to recycled water, or alternatively, a blend of recycled and CVP water. In the later case, an air separation gap would be required between the upstream CVP system and the point where recycled and CVP water are blended.

As shown in Figure 4-2, a pipeline, 10,080 lf, would be required to convey recycled water from the DWTP to a point on the existing CVP distribution network. Additionally, a second pipeline, 16,230 lf in length, would be required to convey CVP water to San Juan Bautista. San Juan Bautista may potentially use treated CVP water for municipal and industrial uses in the future; therefore, the distribution system serving San Juan Bautista must be isolated from the system distributing recycled water to the San Juan Valley.

Table 4-6 shows the total area suitable for irrigation in Alternative 6 based on the analysis described in the previous section. Based on an application rate of 2.25 AF/acre, the total irrigation water demand in the area is approximately 14,760 AF per year. Recycled water could be used to meet a portion of that demand by blending with CVP water.

Table 4-6 Alternative 6 Irrigable Area and Potential Recycled Water Demand

Total Area [Acres]	Area Suitable for Irrigation [Acres]	Potential Recycled Water Demand [(a)] [AFY]
6,860	6,560	9,840 - 19,680

(a) Based on a typical range of agronomic application rates for the Hollister Urban Area, 1.5 AF/Acre – 3.0 AF/Acre

As described in the planning assumptions, a large vegetable processing facility in San Juan Valley is currently developing plans to produce approximately 400 AFY of recycled wash water. If this recycled water is distributed for irrigation purposes in the valley, the potential recycled water demand for the Phase II project would be reduced from 14,760 AFY to 14,360 AFY, which is still significantly above that which is available. Thus, blending would still be required to meet the total demand in this alternative.

4.8. Preliminary Cost Estimates

The preliminary cost estimate for each alternative is presented in Table 4-7. Costs have been developed for pipelines, terminal storage, pump stations and balancing tanks. A construction contingency factor of 30% has been included in the cost estimate, as well as 20% for engineering and administration.

Table 4-7 Preliminary Cost Estimates

	W/M Corridor Alt 1	East of Fairview Alt 2	Lone Tree Alt 3	Santa Ana Valley Alt 4	Tres Pinos Alt 5	San Juan Valley Alt 6
Capital Costs						
Pipelines	$5,538,500	$7,079,800	$8,723,900	$10,988,500	$9,513,100	$4,414,400
Terminal Storage	0	2,273,600	2,273,600	2,273,600	2,273,600	0
Balancing Tanks	2,169,100	415,800	415,800	831,600	831,600	2,169,100
Pump Stations [a]	1,915,300	4,938,700	4,938,700	7,962,100	7,962,100	1,915,300
Construction Cost	9,622,900	14,707,900	16,352,000	22,055,800	20,580,400	8,498,800
Contingency @ 30%	2,886,900	4,412,400	4,905,600	6,492,000	6,049,400	2,549,600
Engineering and Administration @ 20%	2,502,000	3,824,000	4,251,500	5,626,400	5,242,800	2,209,700
Total Capital Cost [b]	15,012,000	22,944,000	25,509,000	34,174,000	31,873,000	13,258,000
O&M Costs						
Annual O&M Cost	$150,100	$229,400	$255,100	$341,700	$318,700	$132,600
Present Worth O&M Cost	2,233,100	3,412,900	3,795,200	5,022,600	4,680,500	1,972,800
Present Worth Energy Cost [c]	1,575,000	2,309,000	2,951,000	4,226,000	3,376,000	1,367,000
Total O&M Cost	3,808,000	5,722,000	6,746,000	9,249,000	8,057,000	3,340,000
Totals						
Total Present Worth	$18,820,000	$28,666,000	$32,255,000	$43,423,000	$39,930,000	$16,598,000
Total Annualized Cost	1,265,000	1,927,000	2,168,000	2,891,000	2,656,000	1,116,000
Potential Recycled Water Demand (AFY)	4,200	3310	4200	4200	1580	4,200
Cost per AFY [d, e]	301	582	516	688	1,681	266

Notes:

(a) Cost for pump stations includes cost to upgrade the pump station at the DWTP to pump maximum month demand requirements.

(b) Costs for alternatives 1, 2, 3 and 4 include $3,884,000 for Phase I facilities from the DWTP to the intersection of Wright and Briggs Road.

(c) Energy costs were calculated on an annual basis based on the projected recycled water availability for each year ($0.12/kW-hr).

(d) Cost per AFY is based upon the lesser of the average potential recycled water demand or the recycled water availability (4,200 AFY).

(e) Does not include the cost of wastewater treatment at DWTP or any cost for demineralization of municipal groundwater supply.

(f) Estimated costs do not include operation and maintenance of onsite facilities or costs associated with growing and harvesting crops. These costs are assumed to be the responsibility of a grower who would manage agricultural production.

(g) All cost estimates are in 2008 dollars.

The total net present values for the alternatives range between $16.6 and $43.4 million. For this preliminary planning cost estimate, it was assumed that annual operations and maintenance costs are approximately one percent of total construction costs. Alternatives 1 through 4 would benefit from the Phase I recycled water infrastructure, thus a credit in the raw construction cost could be allocated to those alternatives, although that has not been included for the costs presented in Table 4-7. The cost per AFY delivered is based upon the lesser of an alternative's average potential recycled water demand or 4,200 AFY.

4.9. Summary of Alternatives

The six alternatives described in the previous sections identify the conceptual areas to deliver Phase II recycled water for beneficial use. Table 4-8 summarizes the major characteristics of each alternative.

Table 4-8 Summary of Conceptual Use Area Alternatives

	W/M Corridor Alt 1	East of Fairview Alt 2	Lone Tree Alt 3	Santa Ana Valley Alt 4	Tres Pinos Alt 5	San Juan Valley Alt 6
Potential Demand [a]	4,200	3,310	4,200	4,200	1,580	4,200
Pipeline Length	28,270	36,130	44,520	56,080	48,552 [b]	26,310 [c]
Pump Stations [d]	1	2	2	3	3	1
Terminal Storage Volume	5 MG	50 AF	50 AF	50 AF	50 AF	5 MG
Total Present Worth	$18,820,000	$28,666,000	$32,255,000	$43,423,000	$39,930,000	$16,598,000
Cost per AFY [e]	$301	$582	$516	$688	$1,681	$266

Notes:

(a) Potential demand based on lesser of the average potential recycled water demand or the recycled water availability (4,200 AFY).

(b) Based on an independent line direct from the DWTP to Tres Pinos. An existing pipeline between the DWTP and the City's Industrial Wastewater Treatment Plant could be used, thus reducing the total pipeline length.

(c) Includes piping to CVP connection point and extension of isolated CVP line to San Juan Bautista.

(d) The number of pump stations includes the pump station located at the DWTP.

(e) Does not include the cost of wastewater treatment at DWTP or any cost for demineralization of municipal groundwater supply.

(f) All cost estimates are in 2008 dollars.

5. Evaluation of Conceptual Use Area Alternatives

This section presents the results of the alternatives analysis including a description of the criteria used to evaluate the alternatives, a summary of the evaluation of each of the alternatives, and finally the combination solution and phasing opportunity identified.

5.1. Evaluation Criteria

A preliminary set of evaluation criteria were developed based on the criteria used for the Phase I site selection. The final evaluation criteria were developed through a workshop with the Steering Committee. The criteria listed below were applied to each of the alternatives.

- Criterion 1: Minimize Cost
- Criterion 2: Creation of New Agricultural Opportunities
- Criterion 3: Long-Term Use Potential
- Criterion 4: Opportunity for Phased Development
- Criterion 5a: Minimize Impacts to Groundwater Elevation
- Criterion 5b: Minimize Impacts to Groundwater Quality
- Criterion 6: Minimize Environmental Impacts
- Criterion 7: Minimize Implementation Risk
- Criterion 8: Minimize O&M Complexity
- Criterion 9: Other Community Benefits

5.1.1. Minimize Cost

A present worth analysis was developed for each of the alternatives to compare relative life cycle costs. Present worth costs were based on estimated capital, operations and maintenance (O&M) costs. Estimated capital and O&M costs at this preliminary level were based on previously completed studies or new conceptual level estimates. The proposed ranges presented are preliminary in nature, and may be adjusted as more information is developed with respect to the costs for each alternative.

In addition to the present worth analysis, additional economic benefits may be considered and factored into the life cycle cost analysis. For example, it is expected that alternatives which can be integrated with Phase I facilities will have a reduced life cycle cost. Therefore, where applicable, these cost savings were included in the estimated capital costs.

- High
  - The alternative has a net present value of less than $20 million.

- Medium
  - The alternative has a net present value of more than $20 million and less than $30 million.
- Low
  - The alternative has a present value of greater than $30 million.

5.1.2. Creation of New Agricultural Opportunities

Conveyance of recycled water to areas which are currently undeveloped or have no existing irrigation water supply could produce new agricultural opportunities and associated economic benefits for the community.

- High
  - The alternative provides significant opportunities for new agricultural developments.
- Low
  - The alternative is an existing development and provides no opportunities for new agricultural development.

5.1.3. Long-Term Use Potential

Does this alternative provide the flexibility for expansion to accommodate future recycled water supply beyond 2023? Will future land use designations require that recycled water use at the conceptual use area be terminated at some point in the future?

- High
  - The alternative can be easily expanded to accommodate future recycled water supply beyond 2023.
  - The future land use designation is compatible with recycled water use.
- Low
  - The alternative is isolated and provides limited or no flexibility to expand.
  - The future land use designation is not compatible with recycled water use.

5.1.4. Opportunities for Phased Development

The recycled water supply will increase incrementally over time, as recycled water production increases. Does the alternative (or combination thereof) provide the ability to be cost-effectively expanded or extended, such that implementation could be completed in two or more phases?

- High

- The alternative provides the opportunity to implement a recycled water project in multiple phases.

- Low
  - The alternative has limited or no ability to be implemented in phases; all infrastructure must be installed initially for this use area.

5.1.5. Minimize Impact to Groundwater

High groundwater levels can create drainage problems for agricultural lands which can impact crop growth and agricultural production. Is the application of recycled water expected to result in high groundwater conditions in the conceptual use area? Additionally, the application of recycled water can impact groundwater quality. For example, exchanging recycled water for CVP water could lead to an increase in groundwater TDS, whereas exchanging recycled water for groundwater which already has a high TDS could actually improve the groundwater quality in that area.

- High
  - The alternative has little or no impact to high groundwater or alleviates existing high groundwater problems.
  - The alternative has no impact to groundwater quality or alleviates existing groundwater quality problems.
- Medium
  - The alternative may adversely affect existing high groundwater conditions, but managed operation approaches should be able to be developed.
  - The alternative has some negative impact on groundwater quality.
- Low
  - The alternative exacerbates high groundwater conditions or significant effort is required for mitigation.
  - The alternative is expected to intensify groundwater quality problems.

5.1.6. Minimize Environmental Impacts

Construction in urban areas is generally considered to have less of an environmental impact than construction in rural undeveloped or agricultural areas. Moreover, there are known critical habitat areas which must be considered and detrimental impacts must be avoided or mitigated.

- High
  - The alternative avoids or minimizes potential environmental impacts, minimal mitigation measures are expected.

- The environmental impact assessment, reporting and approval process is expected to be relatively smooth and short in duration.

- Medium
  - The alternative minimizes potential environmental impacts, significant mitigation measures are expected.
  - The environmental impact assessment, reporting and approval process is expected to be longer in duration.
- Low
  - A recycled water project at the alternative is likely to have adverse impacts on biological, cultural, aesthetic, or air quality resources; or may impact the preservation of agriculture and agricultural land, or other resources which cannot be mitigated.
  - The environmental impact assessment, reporting and approval process is expected to be relatively difficult and long in duration.

5.1.7. Minimize Implementation Risk

In addition to standard permitting and environmental requirements, recycled water projects also require the submission of a Title 22 Engineers Report. Approval of these reports varies among project types and respective regional boards and the California Department of Public Health (CDPH) departments. Additionally, institutional agreements between various municipalities, agencies, and private entities will likely be required to implement the project.

- High
  - The alternative is likely to require minimal effort to implement due to institutional agreements.
  - The alternative is associated with a project type that is typically supported by regulatory agencies.
- Low
  - The alternative is likely to require significant effort to implement due to institutional agreements.
  - The alternative is associated with a project type that is typically not supported by regulatory agencies due to potential groundwater or surface water impacts, etc.

5.1.8. Minimize Operation and Maintenance Complexity

Multiple end users across varying terrain may complicate operations and maintenance requirements for a recycled water project. Additional operating requirements that could result in burdensome operating requirements include numerous pressure zones, multiple pumping and piping systems, or multiple storage reservoirs.

- High
  - The alternative has a reasonable number of end users.
  - The alternative has a reasonable and manageable number of pressure zones, pumping stations, and storage reservoirs.
- Medium
  - The alternative has a moderate number of end users.
  - The alternative has a moderately uncomplicated distribution system.
- Low
  - The alternative has a significant number of end users.
  - The alternative requires complex and sophisticated distribution system (e.g., multiple pressure zones, requires dual piping networks, multiple pumping systems or significant on-site storage requirements).

5.1.9. Other Community Benefits

In addition to the evaluation criteria presented above, it is expected that some alternatives will provide unique community benefits which should be given consideration. For example, providing recycled water to the proposed college site which currently has limited or no irrigation capability may enhance the campus aesthetic and benefit the community. As another example, conveying the recycled water to an up-gradient location (with respect to groundwater flow) would provide a benefit to all those located down-gradient as some of the water may infiltrate into the groundwater.

- High
  - Application of recycled water to the alternative provides significant community benefits which otherwise would not be attained.
- Medium
  - Application of recycled water to the alternative provides some community benefits or the benefits could be equally attained through the use of another available water source.
- Low
  - Application of recycled water to the alternative provides no additional community benefits.

5.2. Evaluation of Alternatives

Table 5-1 presents a summary of the alternatives evaluation. Alternatives were ranked high, medium or low based upon how they met each criterion. A discussion of the evaluation of the alternatives and the ranking rationale is included in the following subsections.

Table 5-1 Summary of Alternative Evaluation

	Alternatives	Minimize Costs	Creation of New Agricultural Opportunities	Long-Term Use Potential	Opportunity for Phased Development	Minimize Impacts to Groundwater[d]		Minimize Environmental Impacts	Minimize Implementation Risk	Minimize O&M Complexity	Other Community Benefits	Total
						Elevation	Quality					
1	Wright/McCloskey	3	1	2 [b]	3 [c]	3	2	2	2	2	2	22
2	East of Fairview	2	2	2 [b]	3 [c]	3	3	1 [e]	2	2	2	22
3	Lone Tree	1	2 [a]	3	3 [c]	3	2	2	2	3	2	23
4	Santa Ana Valley	1	3 [a]	3	3 [c]	3	2	2	2	3	2	24
5	Tres Pinos Area	1	2	2 [b]	2	3	3	2	1	1	3	20
6	San Juan Valley	3	1	3	1	3	2	2	2	3	2	22

Note: 3/2/1 = High / Medium / Low ranking of alternatives relative to criteria

(a) Parcels which have not been in production could be placed into production if recycled water source was made available in the region.

(b) Assumes some parcels in this region could be developed in the future for residential or commercial use.

(c) Assumes Phase I facilities are located at the airport.

(d) Impacts to groundwater were qualitatively assessed by Gus Yates. Groundwater modeling would be conducted for any recommended alternatives.

(e) Tiger Salamander habitats in this region.

5.2.1. Minimize Cost

As previously described, a present worth analysis was conducted for each of the alternatives to compare relative lifecycle costs. The results of this analysis were presented in Table 4-7. Net present worth costs ranged between $16.6 and $43.4 million. Alternatives 1 and 6 were ranked high because they had the lowest net present worth, each below $20 million. Alternative 2 was ranked medium and Alternatives 3, 4 and 5 were each ranked low because their respective net present worth was greater than $30 million.

5.2.2. Creation of New Agricultural Opportunities

Alternative 4 supports the development of new agricultural opportunities in areas that have traditionally not been used for agricultural purposes or have been limited to pasture and grazing lands. Therefore, this alternative has been ranked high. Alternative 5 would largely support commercial and residential irrigation, although it is possible that some new agricultural land could be developed in the area, thus a medium ranking was applied. Alternatives 2 and 3 were also ranked medium because these areas would support the development of new agricultural areas, but not on the same, large scale as Alternative 4. Finally, Alternatives 1 and 6 were ranked low because these areas have existing agricultural developments.

5.2.3. Long-Term Use Potential

Alternatives 1 and 2 were ranked medium with respect to long-term use potential because it is expected that some of the area within these alternatives will be developed for municipal use in the future. The remaining alternatives, Alternatives 3, 4 and 6, were ranked high.

5.2.4. Opportunities for Phased Development

Each of the alternatives to the east of the DWTP have the opportunity for phased development. Alternative 1 would be the first phase, serving the Wright/McCloskey area. Assuming the Phase I recycled water use area is located at the airport site, the pipeline installed to convey the recycled water could be converted for Phase II use in the Wright/McCloskey area.

As recycled water availability exceeds demand in the Wright/McCloskey area, or as water demand and/or interest in recycled water in areas further east, increases, the recycled water transmission pipeline could be extended to serve Alternatives 2, 3 and/or 4. Therefore, each of these alternatives has been ranked high. Additionally, if Alternative 2 is developed, the recycled water distribution pipeline could be extended southward to the Tres Pinos area via the alternate route identified in Figure 4-2. Thus, Alternative 4 was ranked medium.

Alternative 6 would provide recycled water to the San Juan Valley by connecting to the existing CVP distribution network. There is no opportunity for phasing this alternative, therefore it was ranked low.

5.2.5. Minimize Impact to Groundwater

Potential groundwater impacts were qualitatively assessed by Gus Yates, PG, CHg, Consulting Hydrologist. The San Juan Valley already has some problem areas with respect to high groundwater levels. Therefore, Alternative 6 could require some management of the groundwater elevation to ensure that groundwater levels are not further impacted. However, in simply replacing some volume of CVP water with an equivalent volume of recycled water, there would likely be no net impact on the groundwater elevation in the conceptual use area due to a recycled water project. Thus, this alternative was ranked high with respect to groundwater elevation. It is not expected that the remaining alternatives would have a negative impact on groundwater elevations either; all alternatives were ranked high.

In addition to impacts on groundwater elevation, the impacts to groundwater quality were also evaluated. Alternatives 2 and 5 were ranked high because it is assumed that the TDS concentration in the recycled water (500-700 mg/l) would be less than the TDS concentration in the groundwater which is greater than 1000 mg/l. The remaining alternatives were given a medium ranking. The groundwater near Alternatives 3 and 4 is high quality, so application of recycled water in those areas could have some negative impact on the quality; however, the impact would likely not be so great as to characterize it as degradation. The groundwater quality near Alternatives 1 and 6 is known to have high TDS and although the recycled water has a lower TDS concentration, it would presumably be replacing CVP water which has an even lower TDS concentration. Therefore, the total salt load applied could increase slightly. It should be noted that if recycled water is used in lieu of groundwater for agricultural irrigation in either Alternative 1 or 6, this would act to improve the groundwater quality since the TDS concentration would be significantly less.

5.2.6. Minimize Environmental Impacts

Alternative 2 is largely undeveloped land and is known to be a habitat area for the California Tiger Salamander. Developing this area for agriculture could impact the habitat of the California Tiger Salamander. This alternative was therefore ranked low. The remaining alternatives are not known to have critical habitat areas at this time; however, the CEQA process must be followed for each. It is expected that the requirements to implement any of the remaining alternatives, as well as any environmental impacts due to construction of any of the remaining alternatives, would be similar in nature. Therefore, they were ranked medium.

5.2.7. Minimize Implementation Risk

This criterion is related to the level of effort required to prepare permits, a Title 22 Engineers Report, as well as institutional agreements between the various municipalities, agencies, and private entities involved in the recycled water project. Alternative 2 was ranked low due to the additional permitting requirements expected due to the presence of the California Tiger Salamander. Alternative 5 was also ranked low due to the number of different users and user types associated with a recycled water project in this area. The remaining alternatives were ranked high.

5.2.8. Minimize Operation and Maintenance Complexity

In Alternative 6, recycled water would be blended and distributed with the existing CVP distribution system, therefore it is not expected that operation and maintenance of the system itself would change significantly. Thus, this alternative was ranked high.

Alternatives 3 and 4 were also ranked high because it is expected that the number of end users would be small and they would largely be responsible for operating and maintaining the system beyond a certain point (e.g., the last booster pump station).

5.2.9. Other Community Benefits

Each of the alternatives provides some measurable community benefit by providing an additional water resource to the region. Alternative 5 could supply irrigation water to future public facilities (e.g., proposed college and high school) that would otherwise not have an irrigation supply as well as relieve the high demand/pressure situation in the fiberglass CVP distribution pipeline to Tres Pinos. Therefore, Alternative 5 was ranked high because it provides a unique community benefit not offered by the other alternatives. The remaining alternatives were ranked medium.

5.3. Combination Solution and Phasing

Based upon the evaluation of the alternatives presented in Table 5-1 and as discussed in the previous section, the Santa Ana Valley (Alternative 3) and the Lone Tree area (Alternative 2) are the alternatives which best meet the evaluation criteria. However, the capital investment required to support infrastructure construction to provide recycled water to these alternatives is high. Therefore, some form of phasing is preferred, such that infrastructure can be constructed over a period of time and capital invested as necessary to meet demands.

As discussed in the previous section, Alternative 1 can utilize the Phase I infrastructure up to the Wright/Briggs Road intersection, from which it could be extended eastward to the McCloskey/Fairview Road intersection. Utilizing the Phase I infrastructure would reduce the pipeline length by approximately 15,000 linear feet, resulting in a reduction in the capital costs presented in Table 4-7 of approximately $4.5 million. From the McCloskey/Fairview Road intersection, the recycled water distribution system could be further extended to serve the Lone Tree area, Santa Ana Valley, or the east of Fairview area if a demand for recycled water develops in those areas. Used in this manner, Alternative 1 would be the initial facilities constructed for Phase II.

This phased approach would also provide the flexibility to distribute water to the San Juan Valley in the future. Since the initial investment would be relatively minimal, some or all of the long-term recycled water could be conveyed to the San Juan Valley if circumstances indicate that this would be a preferred use. If all recycled water were conveyed to the San Juan Valley in the future, the Wright/McCloskey Road pipeline could be converted to a potable water supply pipeline in the City distribution system.

6. Recommended Implementation Program

As described in the previous sections, a phased solution is recommended for the Phase II recycled water program. This phased solution would minimize initial capital investment, provide maximum long-term flexibility, and create opportunities for developing a market for the use of recycled water.

6.1 Proposed Facilities

The proposed recycled water facilities would incorporate portions of Phase I and extend those facilities in two subsequent phases (Phases IIA and IIB).

6.1.1. Phase I Facilities

The Phase I facilities will include a 20-inch diameter pipeline extending from the DWTP to the Airport. A 'tee' will be located at the intersection of Wright Road and Briggs Road. This tee will provide a connection point between the Phase I and Phase II facilities. The Phase I facilities are scheduled to be complete in 2009.

6.1.2. Phase IIA Facilities

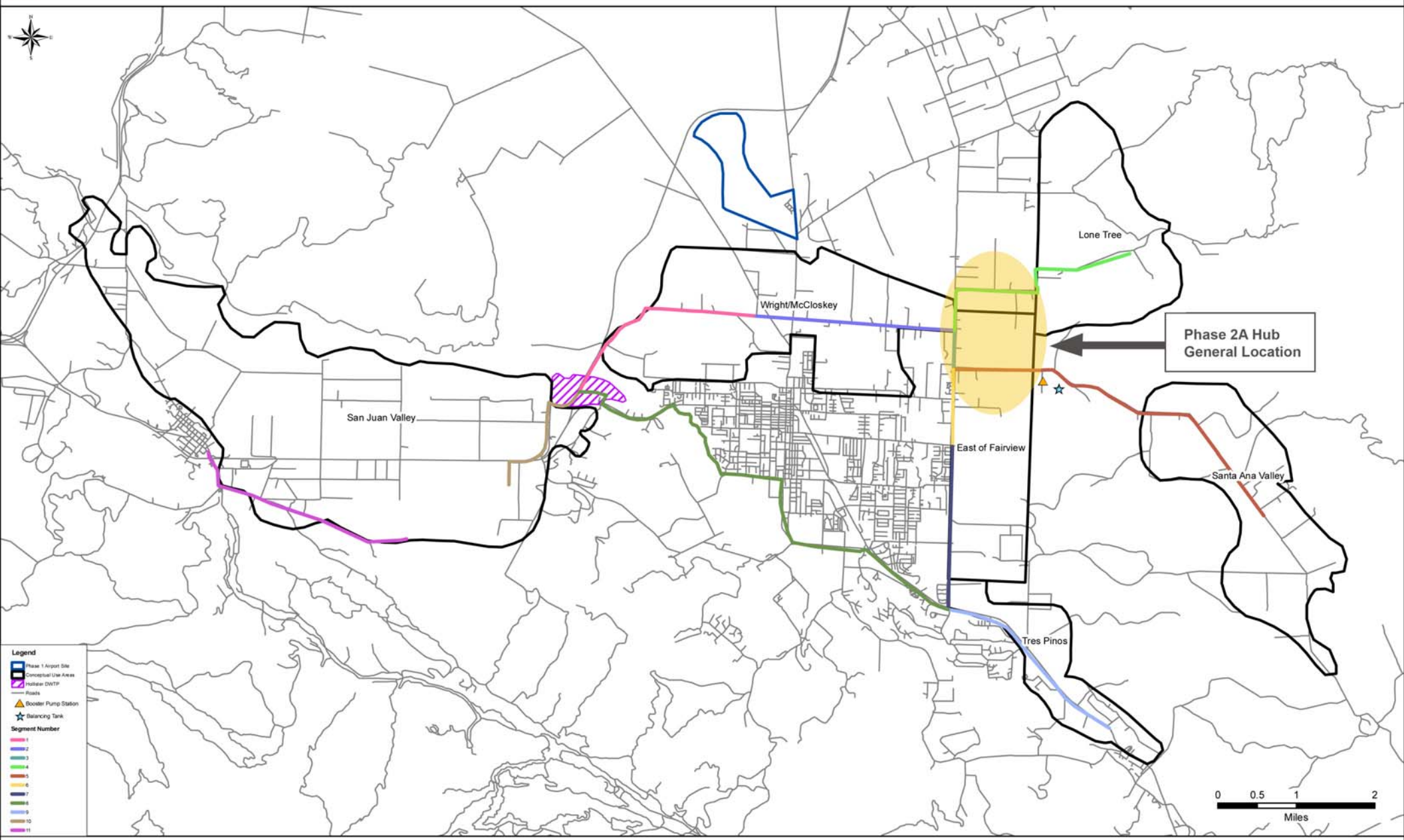
The proposed Phase IIA facilities are shown on Figure 6-1. The facilities would consist of a 20-inch diameter pipeline extending from the Phase I facilities at the intersection of Wright and Briggs Roads, along Wright and McCloskey Roads to the intersection with Fairview Road. As shown on Figure 6-1, a balancing reservoir or terminal storage reservoir would be located in the vicinity of the intersection of McCloskey and Fairview Roads. This location would provide a "hub" for future distribution of recycled water to one or more locations to the east or south. Construction of these facilities would not preclude the future use of recycled water in the San Juan Valley as part of the long-term program.

As indicated in Figure 4-2, there is also a CVP pipeline located in the Wright/McCloskey Road corridor. This CVP pipeline delivers water from east to west. There are also several large parcels in this area which rely on groundwater for irrigation, as indicated in Figure 4-3. Therefore, with multiple supplies available, this corridor provides unique opportunities for blending and creating market demand for recycled water.

6.1.3. Phase IIB Facilities

The Phase IIA facilities would be designed to provide recycled water use through the end of the planning period (2023). Beyond that time additional areas for recycled water use would be required. The flexibility in the Phase IIA facilities would provide opportunities for use in Lone Tree, Santa Ana Valley, or other areas.

There are several factors which could accelerate the timing of the Phase IIB facilities. Some of these factors include:



Recycled Water Feasibility Study Update

Phased Solution for Recycled Water Distribution
Figure 6-1

- Increased urban development in the Wright/McCloskey Road corridor leading to removal of agricultural use areas for recycled water.
- Interest by users in the Lone Tree or Santa Ana Valley for recycled water.
- Renewed interest by users in the San Juan Valley for recycled water.

6.2 Implementation Schedule

A proposed implementation schedule is presented in Figure 6-2. This schedule is based on the assumption that the Phase IIA Facilities will be operational no later than 2015, as specified in the Master Plan MOU.

6.3 Next Steps (2008-2010)

The next steps in the implementation of the recycled water program would include the following.

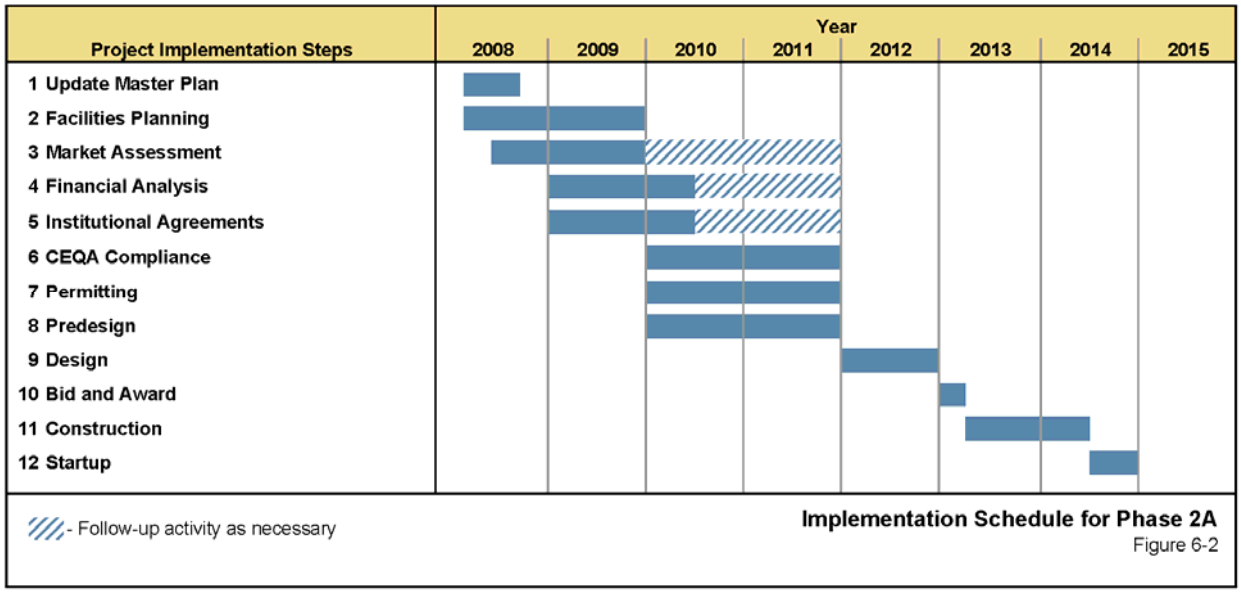
6.3.1. Update Master Plan

The updated information for the use of recycled water presented in this technical memorandum will be incorporated into the update of the Master Plan currently in progress.

6.3.2. Facilities Planning

A more detailed facilities planning study will be required to further define pipeline alignments, reservoir sizing, system operations, and estimated costs.

Figure 6-2 Implementation Schedule for Phase IIA



6.3.3. Market Assessment

Discussions need to be initiated with potential users along the Wright/McCloskey Road corridor. These discussions need to address potential blending of CVP and recycled water supplies, and the use of recycled water instead of groundwater. Discussions should also continue with potential users to the east of Fairview Road, including the Lone Tree area and Santa Anna Valley, for potential long-term use of recycled water.

6.3.4. Financial Analysis

Based upon the detailed cost estimates to be developed through facilities planning, a financial plan must be developed. This financial plan should address all costs (treatment and distribution) and allocation of those costs to the appropriate beneficiaries. Investigation of grants and loans should also be part of the financial planning.

6.3.5. Institutional Agreements

Institutional agreements must be developed for the distribution and sale of recycled water. The MOU for recycled water studies between the City and SBCWD should be amended to assign responsibilities for the next phases of work.

6.4 Future Activities (2010-2014)

As shown on Figure 6-2, activities beyond 2010 will include CEQA compliance, permitting, design, bid and award, construction, and startup.

References

Analytical Environmental Services, 2007. *Draft Subsequent Environmental Impact Report: City of Hollister Reclaimed Water Irrigation Project*. December.

City of Hollister, 2004. *Memorandum of Understanding: Hollister Urban Area Water and Wastewater Master Plan.* 22 July.

City of Hollister, 2007. *Memorandum of Understanding: San Benito County Recycled Water Program.*

City of Hollister, 2008. *Amendment to Memorandum of Understanding: Hollister Urban Area Water and Wastewater Master Plan*. 4 February.

HydroScience Engineers, 2002. *Long-term Wastewater Management Plan for the DWTP and IWTP*. September.

RMC Water and Environment (RMC), 2005. *Draft San Benito County Regional Recycled Water Project Feasibility Study Report.* May.

RMC Water and Environment (RMC), 2005. Technical Memorandum: *Phase I Alternatives.* November.

United States Department of Agriculture (USDA), 1969. *Soil Survey, San Benito County, California*, November.

Draft Environmental Impact Report

Ridgemark Wastewater Treatment and Recycled Water Improvements Project

State Clearinghouse Number 2008071031

Sunnyslope County Water District
March 2009

DRAFT
ENVIRONMENTAL IMPACT REPORT

Ridgemark Wastewater Treatment and Recycled Water Improvements Project

SCH# 2008071031

Prepared by the

Sunnyslope County Water District
March 2009

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SUMMARY

The proposed project is implementation of a wastewater system improvement project to meet the long-term treatment and disposal needs of the Sunnyslope County Water District. The project would be implemented in two phases, with wastewater treatment facility upgrades to reduce the levels of ammonia, nitrates, BOD, TSS, and pH and a recycled water distribution system discussed in Phase 1 at a project-level in this EIR. Phase 2 includes potable water improvements to reduce salinity in wastewater effluent and is addressed at a program-level. Future project-level environmental review will be needed to construct all potable water improvements discussed at a program-level in this document.

Based on year 2000 census data, the population served by the SSCWD wastewater treatment services was estimated at 3,000 persons. Population in the area with SSCWD-provided wastewater treatment is projected to increase by 1,929 to approximately 4,929 persons by 2025 (an increase of approximately 64 percent). The proposed modifications to the SSCWD system would allow for service to this projected population.

Under the Phase 1 of the proposed project, flows from two existing wastewater treatment plants (RM I and RM II) would be combined and the treatment facilities upgraded to accommodate the combined flow and to meet regulatory wastewater treatment requirements. Most of the work would be within the existing boundaries of the RM I and RM II wastewater treatment facilities (ponds with aerators and various piping and pumps).

As noted above, implementation of potable water supply improvements will be discussed at a program-level in this EIR. This second phase of the project would reduce salinity in the wastewater effluent by decreasing the salinity of potable water used in the District's wastewater service area (specifically total dissolved solids (TDS), sodium, and chloride). These improvements could include demineralization and/or water softening of groundwater from wells, and would allow the District to deliver recycled water with lower salinity for irrigation. The time frame for these improvements would be approximately 2011 to 2040, and subsequent environmental review will be required for construction and operation of the potable water supply project(s).

Relationship to Regional Water Planning Efforts

The San Benito County Water District/Water Resources Association's, *Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin* (adopted in 2004) is the principal plan for the management of groundwater in the region. Program-level mitigation measures included in the Groundwater Management Plan are included as applicable in the proposed project.

Subsequent to completion and adoption of the GWMP, a partnership was formed between the City of Hollister, San Benito County, and the San Benito County Water District to work together and provide a long term vision to guide water and wastewater improvements, consistent with the General Plans of San Benito County and the City of Hollister. The three entities executed a Memorandum of Understanding (MOU) and a Statement of Intent in 2005 to develop and maintain the *Hollister Urban Area Water and Wastewater Master Plan.* The Sunnyslope County Water District also has become a party to the MOU. The MOU sets potable drinking water objectives of 500 mg/L total dissolved solids (TDS) and 120 mg/L for hardness (as calcium carbonate). It also sets recycled water TDS objectives of 500 mg/L, but not greater than 700 mg/L, by the year 2015. Other items considered in the MOU include discharge issues, drinking water TDS objectives, and impacts to the

environment, economy, and local culture. The updated draft *Hollister Urban Area Water and Wastewater Master Plan* (HUAWWMP) available in November 2008 also sets and refines near-term (to year 2015) goals, intermediate term (to year 2023) goals, and long term (after 2023) goals for implementation of facility improvements designed to meet HUAWWMP objectives for water and wastewater management.

The proposed project specifically addresses the Ridgemark wastewater treatment area and Ridgemark pressure zone for water supply, an area covered by the planning efforts in the HUAWWMP. Table S-1 summarizes the various components of the proposed project and the project's conformity to the implementation timeframes described in the updated draft HUAWWMP for improvements to these facilities.

Table S-1
Phasing for Ridgemark SSCWD Facilities in the HUAWWMP Area

Ridgemark Project Phase	Description[1]	Estimated Construction	Timeframe[2] in the HUAWWMP	Level of CEQA Review in this EIR	Future CEQA Review
1	***Wastewater Treatment and Recycled Water Improvements***				
1.a	**Improvements at RM I**	2009-2011	Near Term	Project	--
1.b	**Decommissioning of RM II Ponds**	2009-2011	Near Term	Project	--
1.c	**Recycled Water Treatment at RM I and Installation of Water Distribution Pipelines**	2009-2013	Near Term	Project	--
2	***Potable Water Improvements***				
2.a	**Ridgemark Pressure Zone Water Softening**	2011-2013	Near Term	Program[3]	Project
2.b	**Demineralization with Reverse Osmosis**	2014-2017	Near to Intermediate Term	Program[3]	Project
2.a & 2.b	**Water Softener Ordinance**	--	Near Term	Program	As Appropriate

Notes:
[1]Refer to *Section 1.3, Project Description* for a description of proposed project details and phasing
[2]HUAWWMP Phasing/Timeframes: Near Term (to 2015), Intermediate (to 2023), Long Term (after 2023)
[3]Subsequent project-level environmental review is required for these improvements and actions at the time specific projects (including location and project details) are known.

Summary of Significant Impacts

The following information summarizes the ***significant*** effects of the proposed project and mitigation measures proposed to reduce the effects. Impacts that are less than significant are not described in this summary and can be found in the text of the EIR. A complete description of the project and of its impacts and proposed mitigation measures can be found in the text of the EIR, which follows this summary.

SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Land Use Impacts			
Impact LU-5: Implementation of the Phase 2 potable water project could result in significant impacts to agricultural resources, which would be inconsistent with County of San Benito policies designed to protect soil and agricultural resources.	**S**	***Phase 2 Program-Level Mitigation Measures*** Program-level mitigation measures in the *Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin* outline measures for avoiding impacts to Prime Farmland and Farmland of Statewide Importance, including not siting facilities for evaporation of concentrated from groundwater treatment on these lands. The project proposes to use site design to minimize impacts to Prime Farmland and productive agricultural areas; however, given the location and topography of the Ridgemark area and costs associated with pipelines to and from the SSCWD service area, Phase 2 improvements may be proposed on properties considered Prime Farmland based on soil characteristics. Implementation of the following mitigation measures would reduce potential agricultural resources impacts associated with construction of the future potable water/salinity management project, but may not reduce impacts to a less than significant level. **MM LU-5.1: Site Selection - Properties Under Williamson Act** Properties committed to commercial agricultural uses under Williamson Act contract will not be considered as potential sites for potable water treatment evaporation ponds or large scale sludge drying ponds. An exception may be made for a property where a notice of non-renewal has been filed. **MM LU-5.2: Site Assessment** As part of environmental review and project formulation for Phase 2 potable water improvements, possible locations of facilities that are currently mapped as "Prime Farmland" or "Farmland of Statewide Importance" by the California Department of Conservation would be evaluated using the "Land Evaluation and Site Assessment" (LESA) Model to determine the loss of agricultural land that could occur due to these projects. The California LESA Model is a point-based approach for rating the	**S**

LTS = Less Than Significant **S** = Significant

SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		relative importance for agricultural land resources based upon specific measurable features and is included in Appendix G of the CEQA Guidelines as a means to determine the value of land for agriculture. Half of the points in the LESA model are determined by a "Land Evaluation" which includes two factors (Land Capability Class and Storie Index ratings). Both of these ratings are based on the properties of the soils on a particular site. The second part of the evaluation is based on a "Site Assessment' that addresses the physical characteristics of a site (such as surrounding uses) and the availability of water for irrigation. Preference will be given for available sites where development would not be considered a significant impact to farmland under the LESA model. Features, such as surrounding uses or unique parcel configuration, that reduce the viability of the site as productive farmland may also be taken into account. **MM LU-5.3: Site/Project Design to Minimize Impacts to Prime Farmland and Farmland of Statewide Importance** Site and project design will be used to minimize direct and indirect impacts to Prime Farmland and Farmland of Statewide Importance, to the extent feasible**.** For Phase 2.a water softening facilities, measures such as sludge dewatering will be considered to minimize sludge volume and drying areas. **MM LU-5.4: Avoidance of Conflicts with Existing Agricultural Operations** Potential land use conflicts with agricultural operations from new project elements, such as modifying access to fields for farm equipment or reducing necessary land use buffers, will be avoided. As described in *Section 6.0, Alternatives*, measures that could avoid or reduce impacts to agricultural land include an alternative location or an alternative design for sludge or concentrate handling and disposal. The conformance of the various alternatives with project objectives is discussed in detail in *Section 6.0, Alternatives.*	

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		The CEQA Guidelines [Section 15126.2(b)] describes significant environmental effects which cannot be avoided as impacts that cannot be alleviated without imposing an alternative design. Possible impacts to agricultural resources associated with the construction of Phase 2 improvements, therefore, would be significant and unavoidable. **Measures to be Considered at the Time of Future Development of Phase 2 Improvements** **<u>Agricultural Land Conservation Easements</u>** The protection of other existing farmland, such as through the use of agricultural easements or outright purchase, would not be considered mitigation under CEQA because the net result of such actions would still be a net loss of farmland acreage. However, such actions do benefit agriculture by preventing the conversion of otherwise vulnerable farmland to non-agricultural uses. If a project that results in the loss of farmland contributes to the protection of other farmland where the threat or likelihood of conversion to non-agricultural use is imminent, that fact can be taken into account when a Lead Agency adopts a statement of overriding considerations. The SSCWD could: (1) acquire land outright, record an agricultural easement that limits uses of the land to agricultural purposes, and then could either sell or lease the property for farming by others; or (2) negotiate with one or more property owners to allow recordation of an agricultural easement. The property that is the subject of this type of easement might or might not actually be in active cultivation at the time of easement recordation, but would need to meet the following requirements: • Be suitable for agricultural uses, including soil types that would meet the criteria to quality as Prime Farmland, Farmland of Statewide Importance, or	

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		Unique Farmland in the Farmland Mapping and Monitoring Program maintained by the California Department of Conservation, and be of a size that could viably support agricultural uses. If the property is in multiple parcels, the parcels should either be of sufficient size to meet the criteria of agricultural viability, or the parcels should be merged. • The property must be at a location in San Benito County and/or Central California that would qualify it as threatened by the possibility of urban or suburban development. This could include farmland located: (1) immediately adjacent to an urban boundary or urban service area; and/or (2) in the path of, and reasonably proximate to, a clear pattern of recent urbanization or suburban development. • The easement may be offered to the County of San Benito, other appropriate agencies, or a farmland trust and must limit the uses of the land to agriculture in perpetuity. As an alternative to providing individual agricultural easements, the District may also consider participation in an appropriate agricultural mitigation program established for the purpose of mitigating or avoiding loss of agricultural land.	
Geology and Soils Impacts			
Impact GEO-4: Implementation of Phase 2 improvements could have significant geology and soils impacts, particularly from unstable soils and seismic hazards.	**S**	***Phase 2 Program-Level Mitigation Measures*** **MM GEO-4.1: Design-Level Geotechnical Study and/or Soil Foundation Report.** A design-level geotechnical study and/or soil foundation report will be completed to develop specific design criteria for new projects that include the installation of structures, foundations, pipelines, or levees. Geotechnical studies will include site-specific evaluations of soil conditions, fault creep, ground shaking and the potential for liquefaction and lateral spreading. Mitigation measures to reduce geologic and seismic hazards to an acceptable level of risk will be included in new projects.	**LTS**

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		MM GEO-4.2: Post-Seismic Event Functionality for Critical Facilities. Critical facilities, such as water and wastewater treatment facilities and domestic water lines, will be designed and located in a manner that maximizes their ability to remain functional after a major earthquake. **MM GEO-4.3: Erosion Control Measures.** Measures to minimize erosion, including grading during the dry season and reseeding of disturbed areas, will be incorporated in new water management or water treatment projects that require grading and/or tree removal. Erosion and sedimentation control practices are listed in the Program-Level Mitigation Measures in *Section 3.3., Hydrology and Water Quality* of this EIR.	
Hydrology and Water Quality Impacts			
Impact HYDRO-2: Implementation of Phase 1 improvements could result in increased sedimentation or other water quality impacts during construction of new project elements.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM HYDRO 2.1:** The following mitigation measures are included in the proposed project to ensure compliance with NPDES permit requirements enforced by the Regional Board to reduce construction water quality impacts: • The SSCWD and/or its contractors shall prepare and implement an erosion control plan, a stormwater pollution prevention plan (SWPPP) and a stormwater management plan (SWMP) consistent with recommended design criteria, in accordance with the NPDES permitting requirements enforced by the Regional Board. • The SWPPP shall prescribe construction-period BMPs to adequately contain sediment on-site and prevent construction activities from degrading surface runoff. BMPs shall be implemented in accordance with criteria in the California Stormwater BMP Handbook for Construction or other accepted guidance. The SWPPP shall be reviewed and approved by the County prior to issuance of grading permits. • Contractors shall be required to implement Best Management Practices (BMPs)	**LTS**

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		for construction activities. The BMPs include measures guiding the management and operation of construction sites to control and minimize the potential contribution of pollutants to storm runoff from these areas. These measures address procedures for controlling erosion and sedimentation and managing all aspects of the construction process to ensure control of potential water pollution sources. Erosion and sedimentation control practices typically include: - limiting construction to the dry-weather months; - installation of silt fencing and/or straw wattle; - soils stabilization; - revegetation; and - runoff control to limit increases in sediment in storm water runoff (e.g., straw bales, silt fences, check dams, geofabrics, drainage swales, and sand bag dikes). The SSCWD shall identify the SWPPP Manager who will be the responsible party during the construction phase to ensure proper implementation, maintenance and performance of the BMPs.	
Impact HYDRO-6: If located in a 100-year floodplain or a dam inundation area, Phase 2 facilities could be subject to flooding impacts.	**S**	***Phase 2 Program-Level Mitigation Measures*** **MM HYDRO-6.1: Conformance to FEMA Flood Program Requirements and Local Floodplain Ordinance.** At a minimum, all proposed GWMP facilities will conform will conform to FEMA Flood Program requirements and the appropriate local floodplain ordinance. Pipelines shall be buried, with excess spoils disposed of outside of the 100-year floodplain and pump stations shall be sited outside of the floodplain. **MM HYDRO-6.2: Flood Analysis.** A flood analysis will be completed as a part of the design of any constructed wetlands or other project elements located within the 100-year floodplain. The flood analysis will address, at minimum, flood	

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		conveyance, potential increases in flood elevation, and any impacts to neighboring properties. Measures to avoid flooding impacts will be included in the final design of project elements. Berm heights of constructed wetlands or other facilities shall be sufficient to provide adequate freeboard above the 100-year flood event, and the outside surface of the berms shall be covered with riprap or other material to prevent erosion during peak flow events. **MM HYDRO-6.3: Avoidance.** An impermeable barrier, that will prevent saline water from percolating into the groundwater, will be provided beneath any evaporation ponds for concentrate from groundwater demineralization or treatment. Adequate freeboard to contain a 100-year storm event and drainage will be provided in evaporation ponds to prevent runoff from reaching surface waters.	
Impact HYDRO-7: Implementation of Phase 2 improvements could result in increased sedimentation or other water quality impacts during and after construction of new project elements.	**S**	***Phase 2 Program-Level Mitigation Measures*** **MM HYDRO-7.1: Construction BMPs.** Contractors shall be required to implement Best Management Practices (BMPs) for construction activities. The BMPs include measures guiding the management and operation of construction sites to control and minimize the potential contribution of pollutants to storm runoff from these areas. These measures address procedures for controlling erosion and sedimentation and managing all aspects of the construction process to ensure control of potential water pollution sources. Erosion and sedimentation control practices typically include: - limiting construction to the dry-weather months; - installation of silt fencing and/or straw wattle; - soils stabilization; - revegetation; and - runoff control to limit increases in sediment in storm water runoff (e.g., straw bales, silt fences, check dams, geofabrics, drainage swales, and sand bag dikes).	**LTS**

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		MM HYDRO-7.2: Restriction On Stream Channel Construction Scheduling. Construction activities within stream channels (i.e., diversion structures on local streams) shall be confined to the dry, summer season in order to minimize adverse impacts to local water quality. **MM HYDRO-7.3:** The future potable water projects shall prepare a SWPPP in conformance with RWQCB requirements. The SWPPP shall include post-construction water quality BMPs, as appropriate. BMPs shall be designed in accordance with engineering criteria in the *California Stormwater BMP Handbook for New and Redevelopment* or other accepted guidance and designs shall be reviewed and approved by the County prior to issuance of grading permits.	
Biological Resources Impacts			
Impact BIO-3: Implementation of the proposed Phase 1 improvements could result in impacts to California tiger salamander, California red-legged frog, and western spadefoot during construction.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM BIO-3.1: Avoidance:** Impacts to special status aquatic species and their habitat will be avoided to the maximum extent practicable. The proposed project will not undertake any construction within approximately 0.25 miles of the California tiger salamander mitigation pond on the Ridgemark golf course near the terminus of Paullus Drive. As such, the presumed breeding habitat for special status aquatic species will be avoided by the project. **MM BIO-3.2: Minimization:** Implementation of the following measures will be taken during project implementation to avoid potential take of individual special status aquatic species. • Exclusion fencing (e.g., silt fencing) shall be erected around construction zones to minimize the potential of individual California tiger salamander, California red-legged frog, and western Spadefoot to disperse into work areas during construction and maintained and remain in place for the duration of project implementation. Any aquatic species detected during these procedures will be	**LTS**

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		moved to suitable habitat by a biologist possessing USFWS authorization to handle these species, and the agency would be notified. • A qualified onsite monitor shall be present during the initial site grading within 0.25 miles of the breeding pond near the terminus of Paullus Drive. The monitor would only need to monitor the site during the rough grading activities. Monitoring could cease once the build-out site has been completely denuded of habitats.	
Impact BIO-4: Implementation of the proposed Phase 1 improvements could result in impacts to western pond turtles during construction.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM BIO-4.1: Minimization:** The project shall implement the following measures to protect western pond turtles: • Species-specific pre-construction surveys will be conducted 48-hours prior to initiation of construction activities within the treatment and golf course mixing and irrigation ponds, or any of the manmade water features on site; • The placement of fine mesh black fencing between the construction area and the edge of the ponds, where possible, to keep turtles away from heavy equipment; • The training of the construction crew (e.g., tailgate session) by a qualified biologist to ensure that they are not only aware of the protective measures they are to employ in the unlikely event a turtle is found onsite, but also understand the purpose of such measures; • Should a turtle be found during the pre-construction surveys, a qualified biological monitor will be present during construction when work is conducted within close proximity of the pond(s) to ensure that the project does not inadvertently injure or kill an individual western pond turtle. • Should a turtle be found by the construction crew at any time during construction activities, a qualified biologist shall be contacted immediately. The biologist will move the turtle to a safe location and submit a sighting occurrence to the CDFG.	**LTS**

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact BIO-5: Implementation of the proposed Phase 1 improvements could result in impacts to individual burrowing owls during construction.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM BIO-5.1:** A qualified biologist shall conduct pre-construction surveys for burrowing owls within 250 feet of work areas within 30 days of the onset of ground disturbance in all areas of the project that have the potential to support suitable habitat for the burrowing owl (e.g., pipeline construction through ruderal grasslands and work around Pond 6). These surveys will be conducted in a manner consistent with accepted burrowing owl survey protocols. If pre-construction surveys determine that burrowing owls occupy the site during the non-breeding season (September 1 through January 31), then a passive relocation effort (i.e., blocking burrows with one-way doors and leaving them in place for a minimum of three days) may be necessary to ensure that the owls are not harmed or killed during construction. Once it has been determined that owls have vacated the site, the burrows can be collapsed, and ground disturbance can proceed. **MM BIO-5.2:** If burrowing owls are detected on the site or immediately adjacent lands (i.e., within 250 feet of the site boundary) during the breeding season (February 1 through August 31), a construction-free buffer of 250 feet shall be established around all active owl burrows. The buffer areas will be enclosed with temporary fencing, and construction equipment and workers will not enter the enclosed setback areas. Buffers will remain in place for the duration of the breeding season or until it has been determined by a qualified biologist that chicks have fledged and are independent of their parents. After the breeding season, passive relocation of any remaining owls may take place as described above.	**LTS**

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact BIO-6: Implementation of the proposed Phase 1 improvements could result in impacts to San Joaquin kit foxes during construction.	**S**	***Phase 1 Project-Level Mitigation Measures*** In the highly unlikely event a San Joaquin kit fox were to wander onto the site at the time of project construction, the District shall implement the protection measures outlined in the "U.S. Fish and Wildlife Service standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance," (as detailed in MM BIO-15.7) when work will occur within or adjacent to ruderal grasslands, or other areas that may support suitable denning habitat, such as the areas around RM I and Pond 6. The greater study area and potential impact areas do not currently support such denning habitat. While these recommendations were developed by the USFWS Sacramento office, they would be applicable to this project site as well. **MM BIO-6.1:** Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any project activity likely to impact the San Joaquin kit fox. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on the project site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS shall be contacted immediately to determine the best course of action. If no kit fox activity is detected, a written report shall be submitted to the USFWS within five days after completion of the surveys. **MM BIO-6.2:** Permanent and temporary construction activities and other types of project-related activities should be carried out in a manner that minimizes disturbance to kit foxes, should their presence be detected on the site during pre-construction surveys. Minimization measures include, but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash.	**LTS**

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		MM BIO-6.3: The Ventura field office of the USFWS and the Fresno field office of the CDFG will be notified in writing within three working days in case of the accidental death or injury to a San Joaquin kit fox during project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.	
Impact BIO-7: Implementation of the proposed Phase 1 improvements could result in temporary impacts to American badgers during construction.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM BIO-7.1:** Pre-construction surveys, like those conducted for raptors and specifically for burrowing owls, will also be used to determine the presence or absence of badgers within the area of Pond 6, RM I, and ruderal grasslands located within the potential impact area. In the unlikely event that an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a construction-free buffer of up to 300 feet or a suitable distance specified by the resource agencies (i.e., CDFG) will be established around the den. Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor will be present onsite during construction activities to ensure the buffer is adequate to avoid direct impact to individuals or nest abandonment. The onsite monitor will be necessary until it is determined that young are of an independent age and construction activities would not harm individual badgers. Once it has been determined that badgers have vacated the site, the burrows could be collapsed or excavated, and ground disturbance could proceed. Because potential impacts to badger habitat would be temporary in nature, no offsite mitigation is warranted for loss of habitat for the badger.	**LTS**

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact BIO-8: Implementation of the proposed Phase 1 improvements could result in impacts to nesting raptors during construction.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM BIO-8.1:** A qualified biologist shall conduct a pre-construction survey for tree- and ground-nesting raptors throughout the site and in all trees within 250 feet of the site no more than 30 days prior to the onset of ground disturbance, if such disturbance will occur during the breeding season (February 1 through August 31). Pre-construction surveys will be used to determine the presence or absence of nesting raptors. If nesting raptors are detected during the survey within 250 feet of proposed project-related development activities, a suitable construction-free buffer should be established around all active nests. The precise dimension of the buffer (up to 250 feet) would be determined at that time and may vary depending on location and species. Buffers will remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary for most nesting raptors, including all tree-nesting raptors, as they are expected to abandon their roosts during construction.	**LTS**
Impact BIO-9: Implementation of the proposed Phase 1 improvements could result in impacts to nesting waterfowl during dewatering and filling ponds at RM II.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM BIO-9.1:** A qualified biologist shall conduct a pre-construction survey for nesting waterfowl within 100 feet of manmade water features no more than 30 days prior to the onset of ground disturbance, if such disturbance will occur during the breeding season (generally March 1 through June 30). Pre-construction surveys should be used to determine the presence or absence of nesting waterfowl. If nesting of such birds is detected during the survey within 100 feet of proposed project-related activities, a suitable construction-free buffer should be established around all active nests. The precise dimension of the buffer (up to 100 feet) would be determined at that time and may vary depending on location and species. Buffers will remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary for waterfowl as they are expected to abandon their roosts	**LTS**

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		during construction.	
Impact BIO-15: Implementation of the proposed Phase 2 improvements could result in impacts to sensitive habitats or special-status species.	**S**	***Phase 2 Program-Level Mitigation Measures*** **Construction Impacts to Wetland Habitats** **MM BIO-15.1: Avoidance and Minimization.** New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to wetland habitats. If total avoidance is not possible, then wetland replacement will be completed. **MM BIO-15.2: Wetland Replacement.** The wetland habitat that will be lost under any new projects would be functionally replaced in conformance with mitigation requirements of the responsible regulatory agencies. In-kind (the same wetland type) and on-site replacement of lost wetland habitats will be done where possible. The determination of wetland impacts and the subsequent location and design of potential mitigation sites would be determined by qualified biologists in coordination with resource agency personnel. Mitigation and habitat restoration plans would provide for the following: a. Calculation and replacement of lost acreage and functions of wetland habitat b. Location of restoration opportunities, complete with an analysis of the technical approach to create high quality wetlands. c. Detailed plans will be prepared for wetland mitigation construction that includes excavation elevations, location of hydrologic connections, planting plans and soil amendments, if necessary. Maintenance and monitoring plans are to be prepared in consultation with a qualified habitat restoration specialist. Any mitigation wetlands will be monitored for a period of five years, during which the site will achieve the target jurisdictional acreage by Year 5. Specific performance criteria will be determined and monitored for site success.	**LTS**

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		Monitoring reports will be provided annually to the appropriate resource agencies. d. Permits. Prior to construction of any project element that may impact wetland habitats, the project proponent will apply for a Section 404 permit and Water Quality Certification from the U.S. Army Corps of Engineers and the Regional Water Quality Control Board. The project proponent will comply with the conditions of required permits. **MM BIO-15.3: Encroachment Into Riparian Buffer Zones.** If a new project element would be located within 100 feet of the edge of a riparian corridor, and has encroachment impacts, mitigation in the form of habitat replacement or a functional equivalent will be completed. Mitigation ratios will be determined by a qualified biologist and will be based upon the type of development proposed and the quality and extent of indirect impacts to the riparian habitat. **MM BIO-15.4: Implement Hazardous Materials Spill Prevention and Best Management Practices.** A hazardous material spill prevention plan will be developed and implemented for any work in or adjacent to the Pajaro River or its tributaries. Hazardous materials will be stored in secured structures with secondary spill containment features. Refueling of construction equipment and vehicles will not occur within 300 feet of any water body or anywhere that spilled fuel could drain to a water body. The contractors will check and maintain equipment and vehicles daily to prevent leaks of fuels, lubricants, or other fluids. The implementation of Best Management Practices (see Implementation of Best Management Practices for Work in Stream Channels) will also be required. **Construction Impacts to Red-legged Frogs and Other Aquatic Species** **MM BIO-15.5: Avoidance.** To the greatest extent feasible, construction of project elements will be planned to avoid habitat for aquatic species such as the red-legged frog. If construction will occur adjacent to habitat for aquatic species, impacts will be avoided through the following measures.	

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		a. Prior to any construction activities, the boundaries of construction areas will be clearly delineated with orange plastic construction fencing to prevent workers or equipment from inadvertently straying from the construction area. All construction personnel, equipment, and vehicle movement shall be confined to designated construction areas and connecting roadways. Movement of construction and personal vehicles shall be prohibited outside designated construction areas or off established roadways. b. Prior to the onset of any ground disturbing activities, exclusion fencing will be established around areas of potentially occupied habitat, as determined by a qualified biologist. Exclusion fencing will consist of silt-fencing or similar material at least 36 inches in height that is buried six inches in the ground to prevent incursion under the fence. Exclusion fencing may be installed at the base of the construction fencing described in "a" above. This fence will be surveyed each morning before construction, to verify that no frogs have entered the construction site. c. Before any construction activities begin, a U.S. Fish and Wildlife Service approved biologist will conduct a training session with construction personnel to describe the California red-legged frog and its habitat, the specific measures being implemented to minimize effects to the species, and the boundaries of the construction area. d. All food-related trash items will be enclosed in sealed containers and removed daily from a project site to discourage the concentration of potential predators in habitat potentially occupied by California red-legged frogs. **MM BIO-15.6: Consultation with the USFWS.** Take of California red-legged frogs is only permitted through consultation with the USFWS. Some project elements may involve a federal nexus and, therefore, Section 7 consultation will be required. Other project elements will lack a federal nexus, however, and take will only be authorized upon approval of a suitable Habitat Conservation Plan (HCP). The HCP will provide specific mitigation measures appropriate to the scale of take. Depending on the construction activities, these mitigation measures could range	

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		from presence of an on-site monitor to extensive habitat restoration. An HCP would be completed though consultation with the USFWS. **Construction Impacts to San Joaquin Kit Fox** **MM BIO-15.7: Take Avoidance** Standard take-avoidance measures listed on the following pages will be implemented to avoid direct take of any individual kit fox that may wander onto the project site. To avoid direct take of any individual kit fox that may be present on a project site, preactivity surveys will be conducted if any habitat feature with the potential to be used by kit foxes (i.e. burrows, irrigation pipes, debris piles) is created or placed on site and is to be subsequently disturbed or moved. If kit foxes are detected, work in that area must cease and consultation with the USFWS is necessary to determine the appropriate course of action. *STANDARD RECOMMENDATIONS PUT FORTH BY UNITED STATES FISH AND WILDLIFE SERVICE FOR THE PROTECTION OF SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE. 28 JUNE 1999.* **Construction and Operational Requirements** Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbances should be minimized. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts. 1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent	

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		possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited. 2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed. 3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped. 4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or project site. 5. No firearms shall be allowed on the project site. 6. To prevent harassment, morality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites. 7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control	

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		must be conducted, zinc phosphate should be used because of proven lower risk to kit fox. 8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the Service. 9. An employee education program should be conducted for any project that has expected impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; and explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site. 10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject of "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts. 11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.	

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		12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff as 1416-9th Street, Sacramento, California, (916) 654-4262. **Potential Construction Impacts to Vernal Pool Fairy Shrimp** Vernal pool fairy shrimp are reported to occur in San Benito County. Any construction that would directly impact vernal marsh habitat (including construction during the dry season) could negatively impact this species. **MM BIO-15.8: Avoid Habitat.** New projects should be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to vernal marsh habitat. If construction is planned adjacent to vernal marsh habitat, prior to any construction activities, the boundaries of construction areas will be clearly delineated with orange plastic construction fencing to prevent workers or equipment from inadvertently straying from the construction area. **MM BIO-15.9: Protect Water Quality.** Refer to Implement Hazardous Materials Spill Prevention, above.	

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		Construction Impacts to California Tiger Salamanders and Their Habitat California tiger salamanders could occur in aquatic habitats, and in grassland and oak woodland habitats near aquatic habitat (including vernal marshes) in San Benito County. Construction activities in these habitats could impact California tiger salamanders. The following mitigation measures will reduce impacts to California tiger salamanders and their habitat to less-than-significant levels. **MM BIO-15.10: Determine Presence/Absence.** Prior to construction, protocol-level surveys for California tiger salamanders will be conducted by a qualified biologist in any potential habitat for the species that could be affected by the Management Plan. **MM BIO-15.11: Avoidance.** Project elements that will impact California tiger salamanders or their habitat will be redesigned to avoid all impacts. If avoidance is not possible, then Compensation for Habitat Loss and consultation with CDFG will be necessary. **MM BIO-15.12: Compensation for Habitat Loss.** Replacement of aquatic, wetland, and/or upland habitat that provides breeding or aestivation habitat for California tiger salamanders will provided commensurate with project impacts. Restoration of areas of temporary impacts will replace amphibian habitat impacted temporarily. Mitigation ratios to compensate for permanent impacts to aquatic, wetland and upland habitat must provide more than the existing breeding, foraging and aestivation habitat at the impact site and will be approved by CDFG. **Construction Impacts to Burrowing Owls and Burrowing Owl Habitat** Raptors, including owls, and their nests are protected under both federal and state laws, including the Migratory Bird Treaty Act and California Fish and Game Code section 3503.5. Burrowing Owls could occur in grassland habitat and margins of agricultural areas where ground squirrels are present. Construction-related	

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		disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by CDFG. For projects in grassland habitat that could result in permanently displacement of burrowing owls (i.e., installation of evaporation ponds, constructed wetlands, or percolation ponds), protocol burrowing owl surveys will be conducted between April 15 and July 25. If burrowing owls are observed during surveys, the extent of burrowing owl habitat on the site will be delineated by a qualified ornithologist. Avoidance and/or habitat mitigation measures will be incorporated in future projects, as appropriate. **MM BIO-15.13: Avoidance.** Preconstruction surveys for Burrowing Owls will be completed in conformance with CDFG protocols, no more than 30 days prior to the start of construction in grassland habitat and margins of agricultural areas where habitat for Burrowing Owls is present. If no Burrowing Owls were located during these surveys, no additional action would be warranted. However, if breeding or resident owls were located on, or immediately adjacent to, the site, the project could be reconfigured to avoid impacts or buffer zones will be established and/or resident owls will be relocated, as described below. For projects that would permanently displace burrowing owl populations, habitat replacement could be required. **MM BIO-15.14: Buffer Zones.** A 250-foot buffer, within which no new activity will be permissible, will be maintained between project activities and any nesting Burrowing Owls. This protected area will remain in effect until August 31, or at the CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently. **MM BIO-15.15: Relocation.** If construction will directly impact occupied burrows, eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFG authorizing the eviction. No burrowing owls will be evicted from burrows during the nesting	

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		season (February 1 through August 31). **MM BIO-15.16: Habitat Replacement.** For projects that would permanently impact occupied, burrowing owl habitat, habitat replacement may be required as part of a habitat mitigation plan and mitigation agreement with the California Department of Fish and Game. Habitat replacement could include protection of the habitat replacement area in perpetuity by a conservation easement or fee title acquisition. Burrowing owl replacement habitat (for projects in northern San Benito County) should be identified within the northern San Benito County or southern Santa Clara County area. **Construction Impacts to Large Nesting Colonies of Tricolored Blackbirds** Large Tricolored Blackbirds nesting colonies are present in wetland habitats in northern San Benito County. This species could be impacted by construction activities during the nesting season (March 1 to July 1). Construction close to active colonies could result in desertion of nests. **MM BIO-15.17: Preconstruction Surveys and Avoidance**. Prior to construction during the breeding season (March 1 to July 1) within 250 feet of potential nesting habitat for Tricolored Blackbirds (wetland habitat with tall vegetation nearby), preconstruction surveys will be conducted. If Tricolored Blackbirds are present, construction will be delayed until after the breeding season. ***Further Program-level Mitigation Measures to be Applied if a Pipeline Crossing or Stormwater Outfall is Required as Part of Phase 2 Improvements*** **Construction Impacts to Riparian Habitats** **MM BIO-15.18: Avoidance and Minimization.** New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to riparian habitats. If avoidance is not possible, then riparian habitat replacement will	

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		be required. **MM BIO-15.19: Riparian Habitat Replacement.** Permanent impacts to vegetation within riparian habitats are typically mitigated at ratios based on the quality of the habitat to be impacted. Due to the complex mosaic of habitats often found within riparian corridors, impacts are typically assessed based on three habitat quality categories, described below. This methodology ensures that, regardless of the type of habitat impacted, its relative value and time required to reestablish replacement habitat is taken into account in quantifying impacts and necessary mitigation. As a result, the impact quantities are not calculated by habitat type, but rather by habitat quality category. The three habitat quality categories are: • High quality – Native overstory with continuous understory or occurring in dense thickets; dense native overstory with sparse, non-native or no understory; and native willow thicket. • Medium quality – Sparse native overstory with sparse, non-native or no understory, non-native overstory with native understory, and dense non-native overstory with sparse, non-native or no understory. • Lower quality – Sparse non-native overstory with sparse, non-native or no understory. In addition, any areas not included in medium or high quality categories that will be covered with riprap, gabions, etc. (e.g., ruderal habitat and bare ground). Mitigation ratios of 3:1, 2:1, and 1:1 (replacement acres:lost acres) will generally be applied for impacts to high, medium and low-quality habitats, respectively. The assessment of riparian impacts and the subsequent location and design of potential mitigation sites will be determined by qualified biologists in coordination with resource agency personnel. These plans will include the following:	

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		a. A description of how the restoration will replace the lost acreage, functions, and values of riparian habitat. b. Site specific restoration design with a complete analysis of the technical approach to create high quality riparian habitat. The design will include an implementation plan that details site grading, soil amendments, irrigation, planting list, floodplain connectivity, geomorphic conditions and anticipated wildlife use. Revegetation should use native species with seeds or cuttings collected on-site or locally. The restoration plan will also include an explanation of all required site maintenance. A monitoring plan will be developed that includes success criteria for all riparian plantings. **MM BIO-15.20: Consolidation of Riparian Mitigation.** If multiple smaller impact areas occur, it would be beneficial to consolidate mitigation into a larger habitat restoration area. Larger riparian restoration areas would provide greater functions and values than numerous small mitigation sites. The location and design of potential mitigation sites will be determined by qualified restoration biologists in coordination with resource agency personnel. **MM BIO-15.21: Permits**. Prior to construction within the bed and banks of creeks, rivers, or lakes, the project proponent will apply for and obtain a Streambed Alteration Agreement from the California Department of Fish and Game. **Construction Impacts to Aquatic Habitat and Species** **MM BIO-15.22: Implementation of Best Management Practices For Work in Stream Channels.** Implementation of Best Management Practices described below will reduce potential impacts to aquatic species to a less-than-significant level. The following recommendations by the California Department of Fish and Game must be followed, regardless of whether any watercourse within project element footprints are dewatered or not, in order to comply with proper mitigation measures:	

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		a. No equipment will be operated in the live stream channel. b. When work in a flowing stream is unavoidable, any stream flow shall be diverted around the work area by a barrier, temporary culvert or a new channel capable of permitting upstream and downstream fish movement. c. Construction of the barrier or the new channel shall normally begin in the downstream area and continue in an upstream direction and the flow shall be diverted only when construction of the diversion is completed. d. No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the State. **MM BIO-15.23: Impacts to Steelhead.** Steelhead could occur in the San Benito River, Pacheco Creek, and any other unobstructed tributary of the Pajaro River. Construction activities that will occur in stream habitat (e.g. those involving diversion structures) could directly impact steelhead. If channel diversions occur, steelhead could become stranded, and activities in channels could result in direct take of individuals. In addition, construction activities could result in degradation of water quality (e.g. through leaching cement altering stream pH or increasing sedimentation). **MM BIO-15.24: Construction Scheduling and Work in Channels Where Water is Present.** Construction in tributaries of the Pajaro River will be limited to the dry season (June 1 to October 31), when steelhead are least likely to be present. Most of the San Benito River and other tributaries are typically dry during this time period. If construction will occur in a live, flowing, stream channel, National Marine Fisheries Service (NMFS) will be consulted regarding measures necessary to prevent take. Because it is possible that juveniles could be moving downstream	

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		during any time of year, including the dry season, these measures should ensure that movement of steelhead is not prevented by any water diversion structures used during construction, regardless of when construction occurs. Ideally, the live stream channel will be maintained and protected (e.g. by a structure covering the channel, and coffer dams around construction areas). If the live channel cannot be maintained, water would be diverted through construction sites by way of an open ditch (rather than a pipe) connecting the portions of the channel immediately upstream and downstream from the site. This plastic-lined ditch should also be lined with cobble-sized stones to deter predation by making the steelhead less conspicuous as they pass through the channel. Water within this ditch should be at least 30 centimeters (12 inches) deep, and no impediments to movement, such as high drop structures, will be present. **MM BIO-15.25: Reduce Barriers to Movement.** The placement of diversion structures or other hardscape within and immediately adjacent to the low flow channel of any tributary could cause an impediment to migration for steelhead. Potential in-stream structures will be designed in such a way as to not encroach upon the low flow channel and be designed to avoid hardscape that could result in significant eddies within the low flow channel. **MM BIO-15.26: Consultation with National Marine Fisheries Service.** Consultation with National Marine Fisheries Service will be completed for any new project activities that could affect steelhead such as dewatering creeks or rivers, or any in-stream construction.	

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Air Quality Impacts			
Impact AQ-2: The operation of solids drying beds at RM I following Phase 1 improvements could result in the exposure of sensitive residential receptors to objectionable odors.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM AIR 2-1:** An Operations and Maintenance Manual will be prepared as part of the project that will address proper operation and maintenance of all facilities. This manual will include procedures for proper maintenance and operation of the facilities to minimize odor. An Odor Minimization Plan will be prepared and included in this manual. The plan will specifies measures that will be taken to avoid the production of odors at the RM I facility and steps that will be taken if odor complaints are received. The purpose of the Odor Minimization Plan would be to avoid objectionable odors reaching off-site receptors. The plan would include both design features and operational measures to control odors at RM I. Design and operational measures included in the Operations and Maintenance Manual will include, at minimum: • **Aeration of Solids Storage Tank.** The solids storage tank will be aerated to avoid the release of objectionable odors and will be maintained with a water cap to further contain potential odor generation. The Operations and Maintenance Manual will include specification of the frequency and timing of aeration of the solids storage tank. • **Residence Time.** Solids sent to the drying beds will have undergone a 60 to 80 day solids residence time in the SBR and storage tank, resulting in a very stable sludge that will typically have a "musty" odor similar to that of composting organic material. • **Distribution of Solids in the Drying Beds**. When solids are sent to the drying beds, relatively thin layers of sludge will be distributed to the drying beds, allowing water to be removed and evaporated from the drying areas relatively quickly, which will minimize the areas that stay wet for long periods of time. • **Aeration and Turning of Solids in the Drying Beds.** As layers of solids build up in the drying beds, District staff will turn and aerate the piles more	**LTS**

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		frequently to ensure that all of the sludge is aerated and not under anaerobic conditions. • **Protocol for Management of Odors.** The Operation and Maintenance Manual will include a set protocol for on-site management of potential odor problems. Odor suppression chemicals will be used, if needed. • **Odor Complaints.** The District will designate a contact person who would be responsible for responding to any local complaints about odors from the RM I facility. The contact person will determine the cause of the odor complaint (e.g., anaerobic conditions in solids beds, etc.) and will require that reasonable measures to correct the problem condition be implemented. The telephone number for the contact person at the District (831-637-4670) will be conspicuously posted at the main pump station and gate of RM I and included in a notice sent to neighbors upon completion of construction of the RM I improvements. In addition, to comply with Monterey Bay Unified Air Pollution Control District Rule 402 (Nuisances), the phone number of the MBUAPCD shall be visibly posted to ensure compliance with this rule (831-647-9411).	
Impact AQ-4: Construction activities and material hauling could temporarily affect local particulate air quality during Phase 1 improvements.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM AQ-4.1:** Construction contractors shall implement a dust abatement program. All construction contracts will require the following: • Watering shall be used to control dust generation during loading materials onto trucks. • Cover all trucks hauling debris or soils from the site. • Water all exposed soil surfaces at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure. • Cover all trucks hauling dirt, sand or loose materials, or maintain at least two feet of freeboard. • Cover inactive storage piles.	**LTS**

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		• Sweep streets if visible soil material is carried out from the construction site. • Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (Nuisance).	
Impact AQ-5: Implementation of the Phase 2 potable water project could have a significant impact on air quality, particularly temporary construction emissions.	**S**	***Phase 2 Program-Level Mitigation Measures*** **MM AQ-5.1: Air Quality, Dust Control Program.** Prior to construction of evaporation ponds for groundwater treatment concentrate, an effective dust control program will be developed. **MM AQ-5.2:** Future projects will prepare a dust abatement program for construction activities, as described in Mitigation Measure MM 4.1, above. **MM AQ-5.3:** Future projects will conform to all MBUAPCD requirements for the permitting of backup generators.	**LTS**
Noise Impacts			
Impact NOISE-2: Construction noise during Phase 1 improvements could have a significant temporary impact on nearby residential and recreational uses.	**S**	***Phase 1 Project-Level Mitigation Measures*** **MM NOISE-2.1:** • Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours of 7:00 a.m. to 7:00 p.m. daily. • Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment. • Unnecessary idling of internal combustion engines shall be strictly prohibited. • Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise generating equipment when	**LTS**

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		located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by five (5) dBA. • Utilize "quiet" air compressors and other stationary noise sources where technology exists. • Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction-related heavy truck traffic in residential areas where feasible. • Control noise from construction workers' radio to a point that they are not audible at existing residences bordering the project site. • Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator will be conspicuously posted at the construction site and include it in the notice sent to neighbors regarding the construction schedule.	
Impact NOISE-3: Implementation of the proposed Phase 2 improvements could result in a significant noise impacts, particularly temporary construction noise.	**S**	***Phase 2 Program-Level Mitigation Measures*** **MM NOISE-3.1: Minimize Nuisance of Noise Generating Equipment.** Noise generating equipment, such as pumps and compressors, will be designed to avoid causing a nuisance or disturbance to nearby sensitive receptors, defined as residences, schools, medical facilities, libraries, churches, day care centers, and convalescent homes. Noise levels at the property line will conform to the following guidelines, developed from federal and state standards:	**LTS**

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Noise Standards for Noise Generating Equipment Hourly Equivalent (Leq)

	Noise Level in Decibels at Property Line	
	7 a.m. - 7 p.m.	**7 a.m. – 7 p.m.**
Noise generating equipment adjacent to or effecting a property used or zoned for residential or other defined sensitive purposes	60	50
Noise generating equipment adjacent to a property used or zoned for commercial purposes	65	65
Noise generating equipment adjacent to a property used or zoned for industrial or other than commercial or residential purposes or defined sensitive uses.	75	75

In addition, future projects with noise generating equipment will be sited and designed so that noise levels, using the 24-hour Day-Night Level (DNL) descriptor, will not exceed 60 dBA DNL in outdoor activity areas for noise sensitive uses. Noise levels will be reduced by incorporating noise reduction technology (acoustical treatments) such as acoustical enclosures and mufflers.

MM NOISE-3.2: Noise Analysis for Existing and Future Conditions Near Noise Sensitive Receptors. A noise analysis that addresses existing and future conditions will be completed by a qualified acoustical consultant prior to the approval of noise generating projects located in the vicinity of noise sensitive receptors. The noise analysis will identify measures required to conform with the noise guidelines listed in Program-Level Mitigation Measure NOISE-3.1.

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SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Cultural Resources Impacts			
Impact CR-1: Implementation of Phase 1 of the proposed project could have a significant cultural resources impact if buried archaeological deposits or human remains are encountered.	**S**	***Phase 1 Project-Level Mitigation and Avoidance Measures*** **MM-CR-1.1: Notification if Significant Cultural Materials are Encountered.** In the event any significant cultural materials are encountered, all construction within a radius of 100 feet of the find would be halted, Sunnyslope County Water District and County of San Benito personnel would be notified, and the archaeologist will examine the find and make appropriate recommendations regarding the significance of the find and the appropriate mitigation. Recommendations could include collection, recordation, and analysis of any significant cultural materials. **MM-CR-1.2: Notification if Human Skeletal Remains Are Encountered.** In the event that human skeletal remains are encountered, the San Benito County Coroner will be notified immediately. Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian Affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of State law and the Health and Safety Code. The District Manager of the Sunnyslope County Water District and County of San Benito personnel will also be notified immediately, as appropriate, if human skeletal remains are found during development.	**LTS**

LTS = Less Than Significant **S** = Significant

SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact CR-4: Implementation of the proposed Phase 2 improvements could have a significant cultural resources impact**.**	**S**	***Phase 2 Program-Level Mitigation Measures*** **MM CR-4.1: Site-Specific Archive and Literature Search.** A site-specific archive and literature search would be conducted for project sites once they have been selected for construction. An archaeological and architectural field inventory of areas not previous surveyed would also be completed. Appropriate recordation or supplements to existing documentation would be placed on file with the California Historical Resources Information System, Northwest Information Center at California State University Sonoma, Rohnert Park. **MM CR-4.2: Implementation of Measures to Avoid or Reduce Impacts.** For cultural resources identified as eligible for the National Register of Historic Places/California Register of Historical Resources, measures to avoid or reduce impacts to a less than significant level would be implemented. Preferred mitigation is avoidance of areas of recorded or known significant or potentially significant cultural resources. Mitigation measures would include: • Mitigation monitoring by a Professional Archaeologist of archaeologically sensitive areas during ground disturbing construction; • Formal training of construction personnel to recognize, report and avoid cultural resources; • The flagging and/or fencing of recorded cultural resources within 100 feet of a project for avoidance and protection; • Construction contract language discussing the potential for significant subsurface archaeological resources and protocols for dealing with unexpected discoveries; and, • The requirements for the identification, evaluation and treatment of significant unexpected discoveries in accordance with regulatory requirements.	**LTS**

LTS = Less Than Significant **S** = Significant

SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Visual Resources Impacts			
Impact VIS-2: Since the exact location and scope of these improvements is not known, the Phase 2 improvements could result in significant impacts on visual and aesthetic resources.	**S**	***Phase 2 Program-Level Mitigation Measures*** **MM VIS-2.1: Design of New Projects for Compatibility with Nearby Development.** New projects will be designed to be compatible with the mass and scale of nearby development. Structures, such as water treatment facilities, will incorporate design features that reflect the character of nearby development. **MM VIS-2.2: Avoid Blocking View on Designated Scenic Roadways/Highways.** New projects will be designed to avoid blocking views from State of California designated scenic roadways or highway corridors. **MM VIS-2.3: Avoid Substantial Alteration of View on Designated Scenic Roadways/Highways.** New drying bed and/or evaporation ponds, and emergency storage facilities will be designed and sited to avoid substantially altering views from State of California designated scenic roadways or highway corridors. Landscaping and berms will be used to limit views of evaporation ponds. **MM VIS-2.4: Avoid Substantial New Light/Glare on Surrounding Land Uses.** Lighting and building materials at new facilities will be designed to avoid the generation of substantial new light or glare on surrounding land uses.	**LTS**

LTS = Less Than Significant **S** = Significant

SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Energy Impacts			
Impact EN-2: Phase 2 improvements are not defined at this time and may include potable water treatment processes that are energy intensive, such as reverse osmosis. Future improvements could involve substantial energy use.	**S**	***Phase 2 Program-Level Mitigation Measures*** **MM EN-2.1:** Energy and water conservation techniques and energy efficiency will be incorporated in all new building and equipment design and procurement, orientation, and construction.	**LTS**
Cumulative Impacts			
Impact C-LU-2: The cumulative projects, including Phase 2 of the proposed project, would result in a cumulative loss of agricultural lands in San Benito County.	**S**	There is no established mitigation available that will avoid the impacts to agricultural land should the cumulative projects all be developed at the proposed locations. To provide replacement agricultural land, existing development would need to removed elsewhere in San Benito County and soil quality restored to a condition suitable for agricultural production. As described in *Section 3.1.3, Land Use Mitigation and Avoidance Measures*, the protection of other existing farmland, such as through the use of agricultural easements or outright purchase, would not be considered mitigation under CEQA because the net result of such actions would still be a net loss of farmland acreage. However, such actions do benefit agriculture by preventing the conversion of otherwise vulnerable farmland to non-agricultural uses. In San Benito County and elsewhere in the State of California, the total area of mapped farmlands has decreased as farmland is converted to urban uses. In some	**S**

LTS = Less Than Significant **S** = Significant

SIGNIFICANT ENVIRONMENTAL IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	MITIGATION AND AVOIDANCE MEASURES	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		areas, grazing land or other lands are being brought into production; however, the net effect is a reduction in farmland, including Prime Farmland and Farmland of Statewide Importance. Given the constraints of converting existing developed areas to farmland, cumulative impacts to agricultural resources are considered significant and unavoidable.	

LTS = Less Than Significant **S** = Significant

Summary of Growth-Inducing Impacts

The project will result in indirect growth inducement by removing wastewater treatment service as an impediment to growth. The growth that is expected to be served by the project, however, is planned and projected growth for the County of San Benito. The impacts of growth served by the proposed wastewater facility improvements potentially include the loss of agricultural resources, air pollution emissions affecting air quality, impacts to special status species, disturbance of buried cultural resources, geologic hazards, traffic congestion, and water quality impacts associated with increased urban runoff. These indirect impacts could also include temporary construction impacts related to air quality, noise and water quality. The County of San Benito General Plan and zoning regulations require project-specific environmental review and measures to avoid or reduce significant impacts to the environment. The conformance of future development projects to County General Plan policies could avoid or reduce significant environmental impacts associated with new growth; however, some impacts may not be reduced to a less than significant level. The severity of these impacts will depend on the size and location of the induced growth. Since the project will remove an existing impediment to growth and because of the amount of induced growth that could occur, the project would result in a significant growth-inducing impact. **[Significant Impact]**

Summary of Alternatives to the Project

Section 6.0, Alternatives of this EIR evaluates the environmental impacts of several alternatives to the proposed project, one of which is the No Project alternative. These alternatives are summarized below.

No Project Alternative: Under the No Project alternative, the proposed wastewater project improvements (Phase 1) would not be constructed, and the future potable water/salinity management project (Phase 2) would also not be completed. The current Ridgemark I and II facilities would continue to treat wastewater to the existing effluent levels and to the current maximum future capacity. Continuing waste discharge at the existing contaminant levels would result in non-compliance by the District with the Regional Board's order to address updated wastewater standards. Future Phase 2 potable water/salinity management improvements would not be constructed, so that updated salinity standards in wastewater effluent would not be addressed. Projected and planned growth within the District's service area would not be served by expanded facilities.

The No Project alternative would not result in identified construction impacts under Phase 1 or II of the project, all of which would be less than significant with mitigation under the project proposed. The No Project would avoid significant, unavoidable Phase 2 project and cumulative impacts to Prime Farmland and agricultural resources, and would also avoid a significant growth-inducing impact. The No Project alternative, however, may result in water quality impacts through continued discharge of wastewater out of compliance with updated standards. The No Project alternative would not fulfill any of the project's objectives regarding improved water and wastewater quality and capacity.

Phase 1 Improvements: No Growth Alternative: Like the proposed project, the No Growth alternative would improve wastewater effluent contaminant levels to comply with the Regional Board's Waste Discharge Order. However, with the No Growth alternative, the capacity of the treatment system would not increase over existing levels of wastewater inflow, and would subsequently not be able to accommodate the projected growth within the District's service area south of Airline Highway from 3,000 to 4,929 residents.

The No Growth alternative would have similar environmental impacts to the proposed project,

including construction impacts and significant impacts to Prime Farmland and agricultural resources from new potable water treatment facilities under Phase 2. The No Growth alternative would avoid a significant growth-inducing impact by maintaining the current wastewater treatment capacity level. The No Growth alternative would complete improvements to the wastewater treatment system, but would not increase capacity. The No Growth alternative would not fulfill the project's objective of providing upgraded wastewater facilities with adequate capacity to serve projected and planned growth through 2025.

Phase 2 Improvements: Location Alternative I -- Santana Ranch: Santana Ranch is located north of Airline Highway and east of Fairview Road, just east of the city limits of Hollister. Santana Ranch is a four-parcel, 291.8 acre site that is currently designated as "Farmland of Local Importance" by the California Department of Conservation. The site is level to moderately sloping, with a creek drainage crossing the southeast corner of the site.

The Santana Ranch site is currently proposed for residential development. Substantial grading of the western portion of the parcels could be required to construct evaporation ponds since the project site is not entirely level. A potable water facility at this location would need to be set back an appropriate distance from residential uses west of Fairview Road and the existing drainage and riparian vegetation that crosses the southeast corner of the site. It is possible that special-status species that are found in the vicinity could be present on the site. Due to the proximity of the existing residential uses, construction impacts to sensitive uses compared to other likely sites for Phase 2 of the proposed project would be similar or greater. This alternative location is located far away from existing and planned groundwater wells and would require infrastructure (including pipelines and pumps) for raw water conveyance to the treatment plant. Substantial energy power consumption would be required to convey the raw water to the treatment facility.

The Santana Ranch site could be adequate for potable water facilities envisioned under Phase 2 of the proposed project. The site may not be available for purchase by the District. This alternative would be slightly superior to the project in terms of impacts to agricultural resources, but may not completely avoid significant impacts to agricultural resources in the area. The alternative location is located far away from the existing and planned groundwater wells and would require infrastructure for raw water conveyance pipelines to the treatment plant. Significant energy power consumption would be required, and this location would require development on a slightly sloping site. For these reasons, it may not wholly meet District objectives of constructing improvements in a timely and cost effective manner, affordable to ratepayers.

Phase 2 Improvements: Location Alternative II -- Lima Property: The Lima property is situated south and east of the Ridgemark area and southwest of Airline Highway. The entire parcel is over 386 acres, and contains areas that are relatively hilly and others that are relatively level or moderately sloping. The two areas of the parcel that would be considered as prospective alternative sites for the potable water project would be just south of the Ridgemark area, and on the southern portion of the parcel. There is a drainage channel crossing the site from east to west and a depressed area, and the two proposed alternative project locations would avoid this area. Substantial grading could be required to construct evaporation ponds and other facilities since the project site is not entirely level. The parcel is designated as *Agricultural Productive* on the San Benito County General Plan land use map, as are the areas to the south, west, and east. The site is not under Williamson Act contract, but does contain a strip of Prime Farmland along the northwest border which is adjacent to an existing orchard on a separate parcel. The remainder of the site is designated as "Grazing Land" by the California Department of Conservation (as is the bulk of San Benito County). Much of the site west of the hilly areas near Airline Highway is designated as Grade I soils by the County of San Benito.

The site is crossed by power lines, and is generally composed of open grasslands. One residential development area is located on the parcel.

No current proposals for development of the Lima property have been identified. San Benito County information indicates that special-status species, particularly San Joaquin kit fox, could have the potential to be present on the site. The site lacks ponds and other open water, although California tiger salamanders could use the site. Due to the proximity of the existing Ridgemark residential uses, construction impacts to sensitive uses would be similar to other likely sites for Phase 2 improvements. Both construction and operational activities of Phase 2 of the project could result in noise and air quality impacts, and therefore buffers may be recommended between any potable water facilities and residential areas.

The Lima site could be adequate to meet the District's basic objectives to provide upgraded potable water facilities that would supply the projected demand through 2025, and would not cause impacts to Prime Farmland. However, development could result in impacts to County-defined soil resources due to the presence of Grade I soils on the site. The hilly areas of the parcel would not be useable for potable water treatment facilities and the site is larger than required and may not be available for purchase by the District. This alternative would be slightly superior to the project in terms of impacts to agricultural resources, but may not completely avoid significant impacts to Grade I resources in the area. It would require development on a sloping or hilly site and could require purchase of a parcel larger than required than the District, which would increase project costs. For this reason, it may not wholly meet District objectives due to availability or cost.

Location Alternative III: Graniterock Quarry (Southside Sand and Gravel): The Graniterock Quarry site (Southside Sand and Gravel) is located south of Airline Highway and south of Alternative Location II (Lima property) in unincorporated San Benito County. The site consists of two parcels of 156 and 141 acres, and the area of the quarry that could be used for an alternative site is approximately 85 acres across the northern, central portion of the two parcels. This area includes the current quarry operations area. The quarry parcels are designated *Agricultural Productive* on the San Benito County General Plan land use map, as are the areas to the south, west, and east. The site is not under Williamson Act contract, and is designated as "Other Land" on the California Department of Conservation's San Benito County Important Farmlands Map. The site is designated for industrial uses on the County of San Benito Zoning Map. The alternative site location is located north of Tres Pinos Creek, from which sand and gravel are mined by Graniterock Corporation. The quarry is elevated above the creek, and has an uneven terrain, including quarry pits and ponds. Although the property has been partially developed, much of the alternative site location is designated as Grade I soils by the County of San Benito.

This alternative location is currently in use for industrial purposes, which could continue for a number of years (approximately 20 years) until mining activities are complete. The site is east of rural residential uses, although future evaporation ponds would be separated from these areas by a buffer of open grasslands, reducing potential construction and operational impacts. Since the site has been disturbed by mining and development, impacts on special-status species would likely be minimal, although there is a pond on site. The 85-acre portion of the site that could be used for evaporation ponds is outside of the FEMA flood zone of Tres Pinos Creek. Substantial grading could also be required to construct evaporation ponds and other facilities since the existing site contains uneven terrain from mining activities. Like the proposed project, evaporation ponds would need to be lined to prevent concentrate impacting groundwater. Demolition of buildings and other structures may also be necessary.

The quarry site could be adequate to meet the District's basic objectives to provide upgraded potable water facilities that would supply the projected demand through 2025, and would not cause impacts to Prime Farmland. If converted to a water treatment facility, future use of the site to provide mineral resources would be affected. The property may not be available for use by the District or be consistent with the planned end use of the site under a Reclamation Plan for the quarry. This alternative would be superior to the project in terms of impacts to agricultural resources. Although located away from the identified mineral resources along the San Benito River, it also could result in the loss of availability of a local mineral resource recovery site. It would require redevelopment and grading of a parcel currently in use for industrial purposes, and may require purchase of a property larger than required. For these reasons, the site may not wholly meet District objectives.

Phase 2 Improvements: Design Alternatives for Concentrate Handling: Potable water treatment facilities for water softening and demineralization generate sludge or concentrate slurries as the hardness (primarily calcium and magnesium) and total dissolved solids are removed from treated groundwater. Water for the sludge (from water softening) or concentrate stream (from reverse osmosis demineralization) is generally evaporated further to reduce the weight or number of truck trips required to dispose of the material.

The concentrate generated by a Reverse Osmosis (RO) groundwater treatment process under Phase 2 can be reduced through either advanced concentration, land evaporation using ponds, or other technologies. Disposal alternatives include deep well injection, land filling of solids, or discharge to an ocean outfall. A preferred disposal option would likely be coupled with one or more concentrate reduction alternatives to reduce the volume of concentrate for disposal. Both advanced concentration of effluent and deep well injection are methods of handling and/or disposal that would avoid the construction of large evaporation ponds on Prime Farmland.

Advanced Concentration and Disposal: As an alternative to evaporation ponds, an RO concentrate thermal or membrane separation process could be used to reduce the volume of waste concentrate for disposal. For the purposes of this analysis, it is assumed that the Vibratory Shear Separation Process (VSEP) is the advanced concentration method used. Concentrate from the VSEP process could be disposed of to a landfill or by ocean disposal method. If concentrate is disposed of to a landfill, the concentrate would be evaporated further to approach a solid form before being accepted into a landfill. If the material is disposed of by ocean outfall, further evaporation would be completed to minimize truck trips to the coast, but concentrate would remain in a liquid form.

Advanced concentration of the RO concentrate could be used as an alternate method in the Phase 2 potable water project in lieu of the use of evaporation ponds. This method would substantially reduce impacts to Prime Farmland from construction of evaporation ponds, which require a relatively large amount of flat land. This alternative would fulfill most of the project objectives, but would require substantial energy to implement. Even if Phase 2 of the project used advanced concentration instead of evaporation ponds to concentrate effluent, several acres of land would still be required for the other potable water facilities. Since much of the open land near the existing SSCWD facilities is Prime Farmland agricultural resource impacts could still occur, albeit on a smaller scale. This alternative would increase energy usage and the emission of greenhouse gases associated with advanced concentration. The cost to District customers would be greater, which may not be consistent with the cost effectiveness objective of the project. This alternative would be environmental superior in terms of impacts to agricultural resources, but would result in increased energy usage and air emissions (both criteria pollutants and greenhouse gases), and higher water service costs.

Deep Well Injection*:* For deep well injection, concentrate from a reverse osmosis process would be injected into an underground saline aquifer. Preliminary data indicates that a saline aquifer appropriate to receive concentrate exists at depths of 1,500 to 5,000 feet or more below ground surface, which would be confirmed with a more detailed evaluation if deep well injection is selected as a disposal option. Some evaporation ponds would be required as backup of the injection system. Deep well injection is not a commonly used disposal method for concentrate, and could incur substantial costs for technical studies, drilling, and well development. Deep well injection would also require approval by the U.S. Environmental Protection Agency and other agencies. Costs could range from three to five million dollars for well development. If a suitable aquifer is not found during exploratory studies, an alternative disposal method would be required.

Deep well injection could be used as an alternate process for concentrating effluent to avoid construction of evaporation ponds. However, it is likely that some evaporation ponds would still be required for backup of the injection system. Deep well injection would therefore avoid some of the impacts to Prime Farmland, but would not necessarily avoid these impacts entirely. There is no assurance that a suitable saline aquifer will be found near the District. Given the high cost of well development for deep well injection systems and the size of the District (less than 5,000 residents south of Airline Highway), this alternative would not meet the District's objectives regarding costs to ratepayers.

Known Areas of Controversy

There are no known areas of controversy regarding the proposed project.

SECTION 1.0 INTRODUCTION, BACKGROUND, AND PROJECT DESCRIPTION

1.1 INTRODUCTION

This Environmental Impact Report (EIR) has been prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) and the regulations of the Sunnyslope County Water District (District). The purpose of the EIR is to inform the public and various governmental agencies of the environmental effects of a proposal to complete upgrades to the District's wastewater treatment and potable water facilities. The District is both the lead agency and project proponent.

1.1.1 CEQA-Plus

This EIR has been prepared in part to comply with the environmental review requirements for the State Revolving Fund (SRF) Loan Program administered by the California State Water Resources Control Board (SWRCB) for wastewater treatment systems operators. The SRF Loan Program is partially funded by the U.S. Environmental Protection Agency (EPA) and subject to federal environmental regulations, including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA), among others. The EPA has chosen to use CEQA as the compliance base for the SRF Loan Program (in addition to compliance with the federal ESA, NHPA and CAA), instead of the federal National Environmental Policy Act (NEPA). Collectively, the SWRCB refers to these additional requirements as "CEQA-Plus." The project's compliance with each of the federal programs is discussed further in the applicable sections of the EIR.[1]

1.1.2 Type of EIR

This document provides both program-level and project-level environmental review appropriate for the Sunnyslope County Water District Ridgemark Wastewater Treatment and Recycled Water Improvements Project, in accordance with CEQA Guidelines Section 15146, 15151, and 15168. The basic elements of the project are evaluated at a program-level, and the first phase of the project, improvements to wastewater treatment and distribution of blended recycled water are addressed at a project-level. All elements of the Ridgemark Wastewater Treatment and Recycled Water Improvements Project are related geographically, and as "logical parts of contemplated actions" (CEQA Guidelines Section 15168(a)(2). The CEQA Guidelines state that the advantages of program-level analysis is that an EIR can include avoidance of duplicate consideration of basic policy considerations and look at broad policy alternatives and program-wide mitigation measures at an early time when there is greater flexibility to deal with basic problems or cumulative impacts. The proposed and future activities by the District have generally similar environmental effects which can be mitigated in similar ways.

The project would be implemented in two phases with wastewater treatment facility upgrades and a recycled water distribution system discussed in Phase 1 at a project level in this EIR. Phase 2 includes potable water improvements to reduce salinity in wastewater effluent and is addressed at a program-level in this EIR. These two basic phases are outlined below and described in more detail in *Section 1.3, Project Description.*

[1] State Water Resources Control Board, Division of Financial Assistance, *Environmental Review Process Guidelines for State Revolving Fund Loan Applicants,* September 2004, http://www.waterboards.ca.gov/funding/docs/srf/appendix_e.pdf, accessed June 9, 2008.

1.1.2.1 *Project-Level Analysis (Phase 1)*

The EIR provides project level environmental review for the first phase of the project; improvements to the existing wastewater treatment facility, installation of recycled water lines of the Ridgemark Golf and Country Club, and use of blended recycled water for irrigation of the existing Ridgemark Golf Course. The details of the first phase of the project are known and, in accordance with Section 15161 of the CEQA Guidelines, the environmental review for this portion of the project will focus on the changes in the environment that would result from the project, including construction and operation. All wastewater aspects of this EIR are discussed at a project-level.

Per CEQA Guidelines Section 15146, the degree of specificity required in the EIR will correspond to the degree of specificity involved in the underlying activity. The project-level discussion of the first phase of the project will be more detailed than the second phase (potable water treatment and increased use of recycled water) because the effects of construction and operation can be predicted with greater accuracy.

1.1.2.2 *Program-Level Analysis (Phase 2)*

Analyzing the salinity management/potable water component of the project at a project-level is not possible at the current time, since the exact location and size of the potable water improvements are not currently known. However, to maximize water recycling, including non-blended delivery of the recycled water to customers, salinity management must be in place. Future potable water improvements could include demineralization and/or water softening of groundwater from wells. Therefore, the recycled water project and the potable water project are related and are "logical parts in the chain of contemplated actions,"

Based on Section 15168 (c), "subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared." The program EIR may be used to simplify the task of preparing environmental documents on later parts of the program.

1.1.3 **Background**

The Sunnyslope County Water District service area currently comprises approximately 3.5 square miles in San Benito County east and southeast of the City of Hollister. The District serves a population of approximately 16,000, with approximately 5,300 water service and 1,200 wastewater service connections. The District provides wastewater services to the Ridgemark Estates community, and the Oak Creek and Quail Hollow subdivisions (refer to Figure 4).[2] The water service area boundary is shown on Figure 5.

1.1.3.1 *Regional Water Quality Control Board Requirements*

On December 3, 2004, the Central Coast Region (District 3) Regional Water Quality Control Board (RWQCB) issued Waste Discharge Order No. R3-2004-0065, requiring the District to address updated standards for ammonia, nitrates, total suspended solids (TSS), biochemical oxygen demand (BOD), sodium, chloride, and total dissolved solids (TDS) in wastewater effluent to comply with Title 22 standards. Based on the District's 2006 analysis of wastewater treatment and disposal options, the District is proposing construction of wastewater treatment facility improvements in order

[2] San Benito LAFCO, *Countywide Municipal Services Review*, November 2007.

to comply with the Order's requirements.[3] To fully comply with this order, wastewater treatment facility upgrades to reduce these constituent levels must be in place by January 2010.

The existing effluent levels for these constituents and the waste discharge standards are listed below in Table 1.1-1. Wastewater treatment facility upgrades to reduce the levels of ammonia, nitrates, BOD, TSS, and pH are discussed in detail in this EIR (Table 1.1-1, #1-5).

Upgrades to reduce TDS, sodium, and chloride would be addressed through improvements to the potable water supply as part of Phase 2. Since the exact location of these improvements is not currently known, these improvements are addressed at a program-level in this document, and will be analyzed at a project-level through subsequent CEQA review (refer to *Section 1.3.3* and Table 1.1-1, #6-8, below).

Table 1.1-1
RWQCB Waste Discharge Requirements

	Parameter	Current RM I Effluent Average (mg/L)	Current RM II Effluent Average (mg/L)	Waste Discharge Permit Requirement (mg/L)
1	**Nitrate as Nitrogen***	0.2	0.46	5
2	**Ammonia as Nitrogen***	22	12.3	5
3	**Biochemical Oxygen Demand (BOD)**	57	8.7	30
4	**Total Suspended Solids (TSS)**	88	20.7	30
5	**pH**	7.78-8.32	7.94-9.1	6.5-8.4
6	**Total Dissolved Solids (TDS)**	1,774	1,973	1,200
7	**Sodium**	416	508	200
8	**Chloride**	604	738	200

*Note: During the treatment process, ammonia is converted into nitrate, therefore effluent nitrate concentrations will need to be addressed.
(mg/L = milligrams per liter)

1.1.3.2 *Regional Water Planning Efforts*

Groundwater Management Plan

The San Benito County Water District/Water Resources Association's, *Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin* (adopted in 2004) is the principal plan for the management of groundwater in the region. The Water Resources Association includes the City of Hollister, the City of San Juan Bautista, the San Benito County Water District, and the Sunnyslope County Water District. The Groundwater Management Plan (GWMP) identifies goals and objectives for short-term and long-term management of water resources in San Benito County within the Gilroy-Hollister Groundwater Basin. The GWMP Update addresses both surface and groundwater management as well as wastewater treatment discharges and use of recycled water supplies. The Plan is intended to provide realistic, sustainable, good quality water for existing and future agricultural, municipal, and industrial uses.

[3] Sunnyslope County Water District, *Long-term Wastewater Management Plan,* January 2006.

Groundwater issues addressed in the GWMP include the imbalance of areas of high and low groundwater, inadequate disposal of wastewater, and the accumulation of salts and nitrates in the basin. The GWMP identifies an extensive list of programs and projects to address these concerns. These range from conservation measures and education programs, to the development of higher quality water sources and water import/export management. Program-level mitigation measures included in the Groundwater Management Plan are included as applicable as applicable in the proposed project.

Hollister Urban Area Water and Wastewater Master Plan

Subsequent to completion and adoption of the GWMP, a partnership was formed between the City of Hollister, San Benito County, and the San Benito County Water District to work together and provide a long term vision to guide water and wastewater improvements, consistent with the General Plans of San Benito County and the City of Hollister. The three entities executed a Memorandum of Understanding (MOU) and a Statement of Intent in 2005 to develop and maintain the *Hollister Urban Area Water and Wastewater Master Plan.* The Sunnyslope County Water District also has become a party to the MOU. The MOU sets potable drinking water objectives of 500 mg/L total dissolved solids (TDS) and 120 mg/L for hardness (as calcium carbonate). It also sets recycled water TDS objectives of 500 mg/L, but not greater than 700 mg/L, by the year 2015. Other items considered in the MOU include discharge issues, drinking water TDS objectives, and impacts to the environment, economy, and local culture. The *Hollister Urban Area Water and Wastewater Master Plan* (HUAWWMP) (November 2008) also sets near-term (to year 2015) goals, intermediate term (to year 2023) goals, and long term (after 2023) goals for implementation of facility improvements designed to meet HUAWWMP objectives for water and wastewater management.

The proposed project specifically addresses the Ridgemark wastewater treatment area and Ridgemark pressure zone for water supply, an area covered by the planning efforts in the HUAWWMP. Table 1.1-2 summarizes the various components of the proposed project and the project's conformity to the implementation timeframes described in the HUAWWMP for improvements to these facilities.

1.2 PROJECT LOCATION

The proposed project is located in San Benito County, southeast of the City of Hollister. The proposed wastewater facility improvements and recycled water lines would be located within the Sunnyslope County Water District, on and adjacent to the private Ridgemark Golf and Country Club, located between State Route 25 and Southside Road, near the southern terminus of Fairview Road. The San Benito River is located west of the project site.

Regional, vicinity, and aerial maps of the project site are attached as Figures 1, 2, and 3, respectively.

1.3 PROJECT DESCRIPTION

1.3.1 Overview

The proposed project is implementation of a wastewater system improvement project to meet the long-term treatment and disposal needs of the Sunnyslope County Water District. The project would be implemented in two phases, with wastewater treatment facility upgrades to reduce the levels of ammonia, nitrates, BOD, TSS, and pH and a recycled water distribution system discussed in Phase 1 at a project-level in this EIR. Phase 2 includes potable water improvements to reduce salinity in wastewater effluent and is addressed at a program-level. Future project-level environmental review

Table 1.1-2
Phasing for Ridgemark SSCWD Facilities in the HUAWWMP Area

Ridgemark Project Phase	Description[1]	Estimated Construction	Timeframe[2] in the HUAWWMP	Level of CEQA Review in this EIR	Future CEQA Review
1	***Wastewater Treatment and Recycled Water Improvements***				
1.a	**Improvements at RM I**	2009-2011	Near Term	Project	--
1.b	**Decommissioning of RM II Ponds**	2009-2011	Near Term	Project	--
1.c	**Recycled Water Treatment at RM I and Installation of Water Distribution Pipelines**	2009-2013	Near Term	Project	--
2	***Potable Water Improvements***				
2.a	**Ridgemark Pressure Zone Water Softening**	2011-2013	Near Term	Program[3]	Project
2.b	**Demineralization with Reverse Osmosis**	2014-2017	Near to Intermediate Term	Program[3]	Project
2.a & 2.b	**Water Softener Ordinance**	--	Near Term	Program	As Appropriate

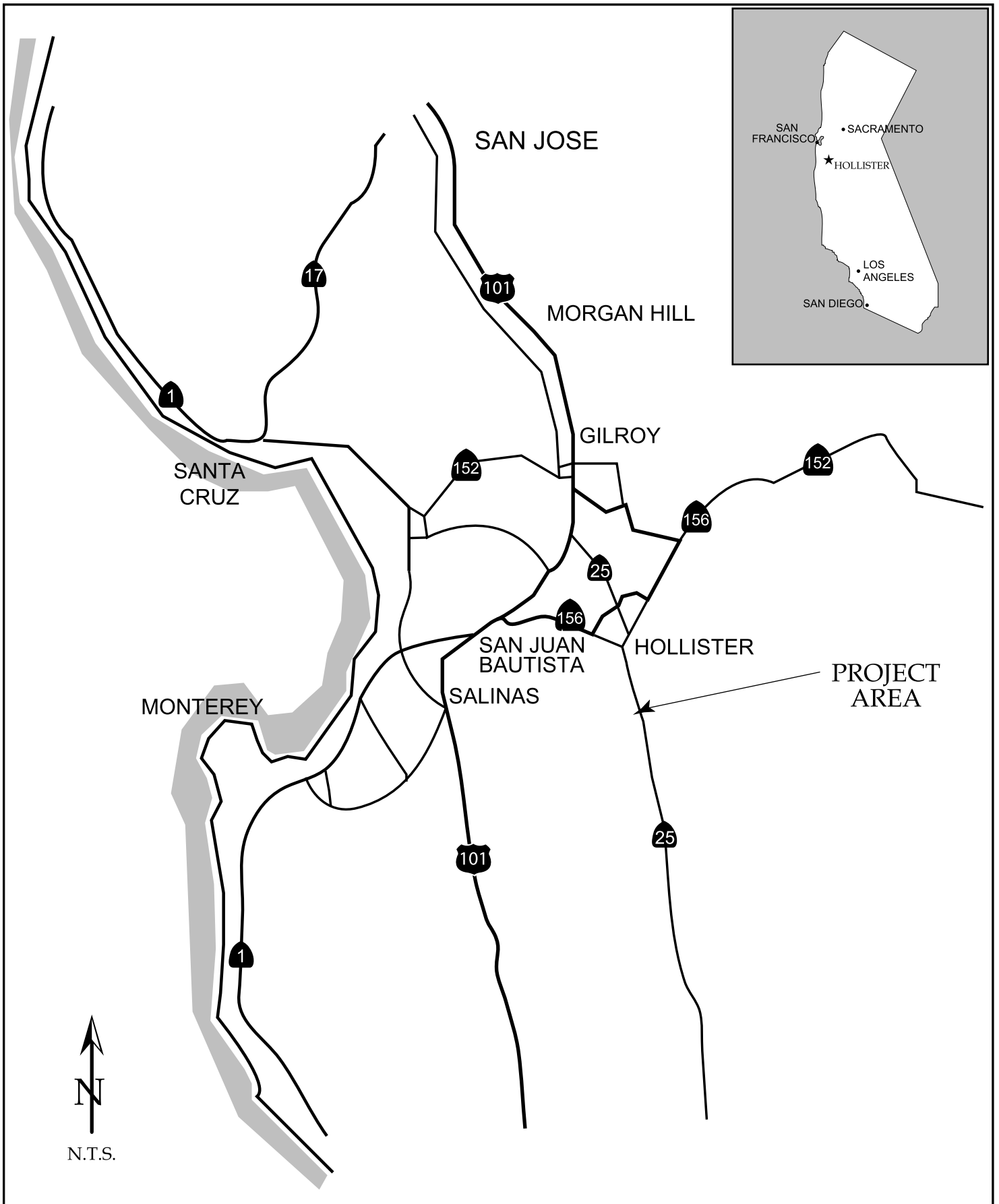
Notes:
[1]Refer to *Section 1.3 Project Description* for a description of proposed project details and phasing
[2]HUAWWMP Phasing/Timeframes: Near Term (to 2015), Intermediate (to 2023), Long Term (after 2023)
[3]Subsequent project-level environmental review is required for these improvements and actions at the time specific projects (including location and project details) are known.

will be needed to construct all potable water improvements discussed at a program-level in this document. Based on year 2000 census data, the population served by the SSCWD wastewater treatment services was estimated at 3,000 persons. Population in the area with SSCWD-provided wastewater treatment is projected to increase by 1,929 to approximately 4,929 persons by 2025 (an increase of approximately 64 percent). The proposed modifications to the SSCWD system would allow for service to this projected 2025 population of 4,929, assuming a generation rate of 71 gallons per day per capita (Figure 4).[4] The project site is located within the Sunnyslope County Water District's (SSCWD) Sphere of Influence and Service Area boundaries for water services (refer to Figure 5).

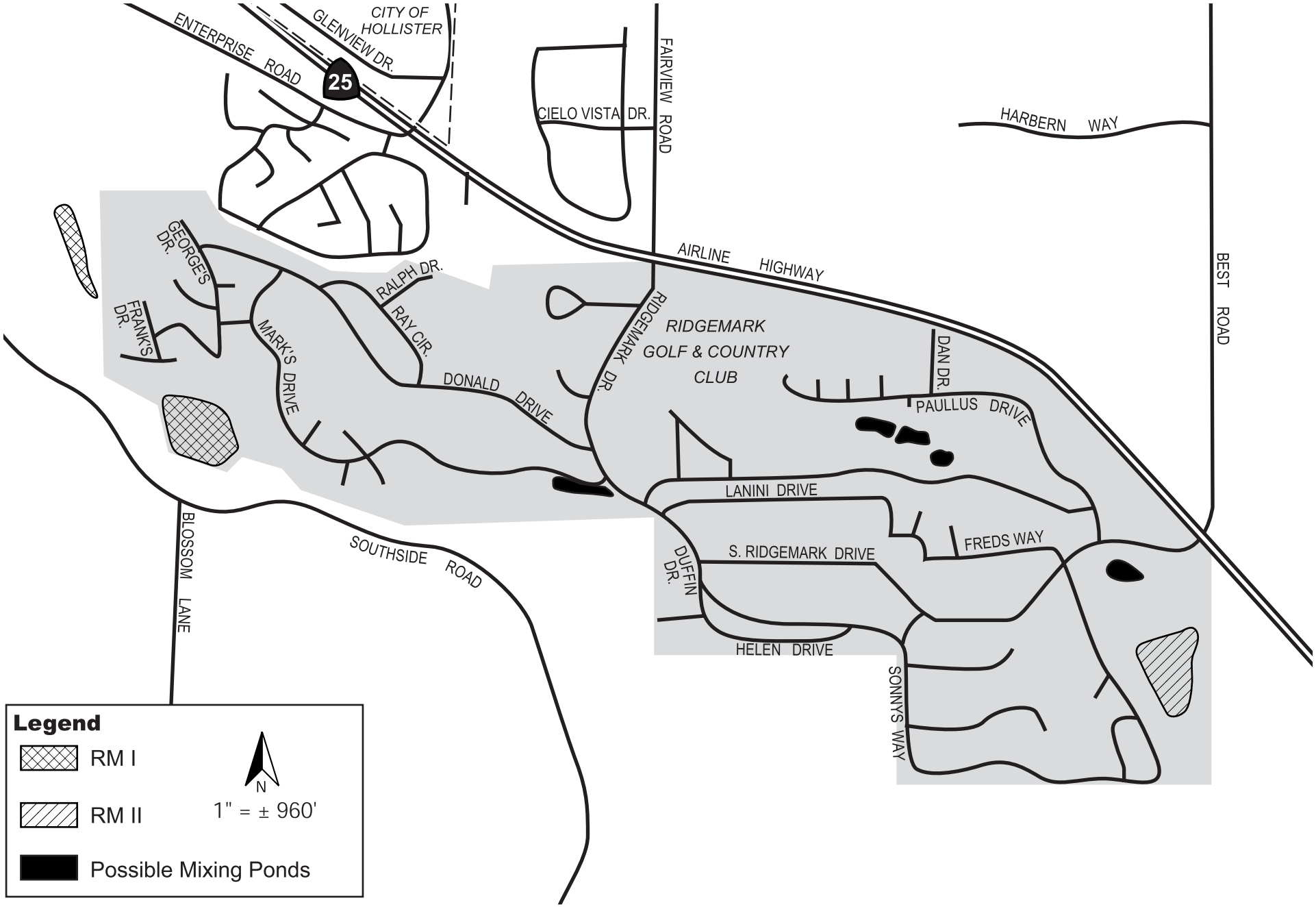
Under the proposed project, flows from two existing wastewater treatment plants (RM I and RM II) would be combined and the treatment facilities upgraded to accommodate the combined flow and to meet regulatory wastewater treatment requirements. Most of the work would be within the existing boundaries of the RM I and RM II wastewater treatment facilities (ponds with aerators and various piping and pumps). RM I and RM II together are currently permitted for a combined daily flow of 370,000 gallons average over each month (30-day average). RM I was originally designed for a flow rate of 168,000 gallons per day (GPD), and RM II was designed for a flow rate of 240,000 GPD.[5]

District wastewater flows from 2005 through 2007 were evaluated to determine the existing wet and dry season averages and maximum flow days. These values and the proposed increase in flow

[4] Sunnyslope County Water District, *Final Basis of Design Report,* August 25, 2008.
[5] California Regional Water Quality Control Board Central Coast Region, Waste Discharge Order No. R3-2004-0065, December 3, 2004.

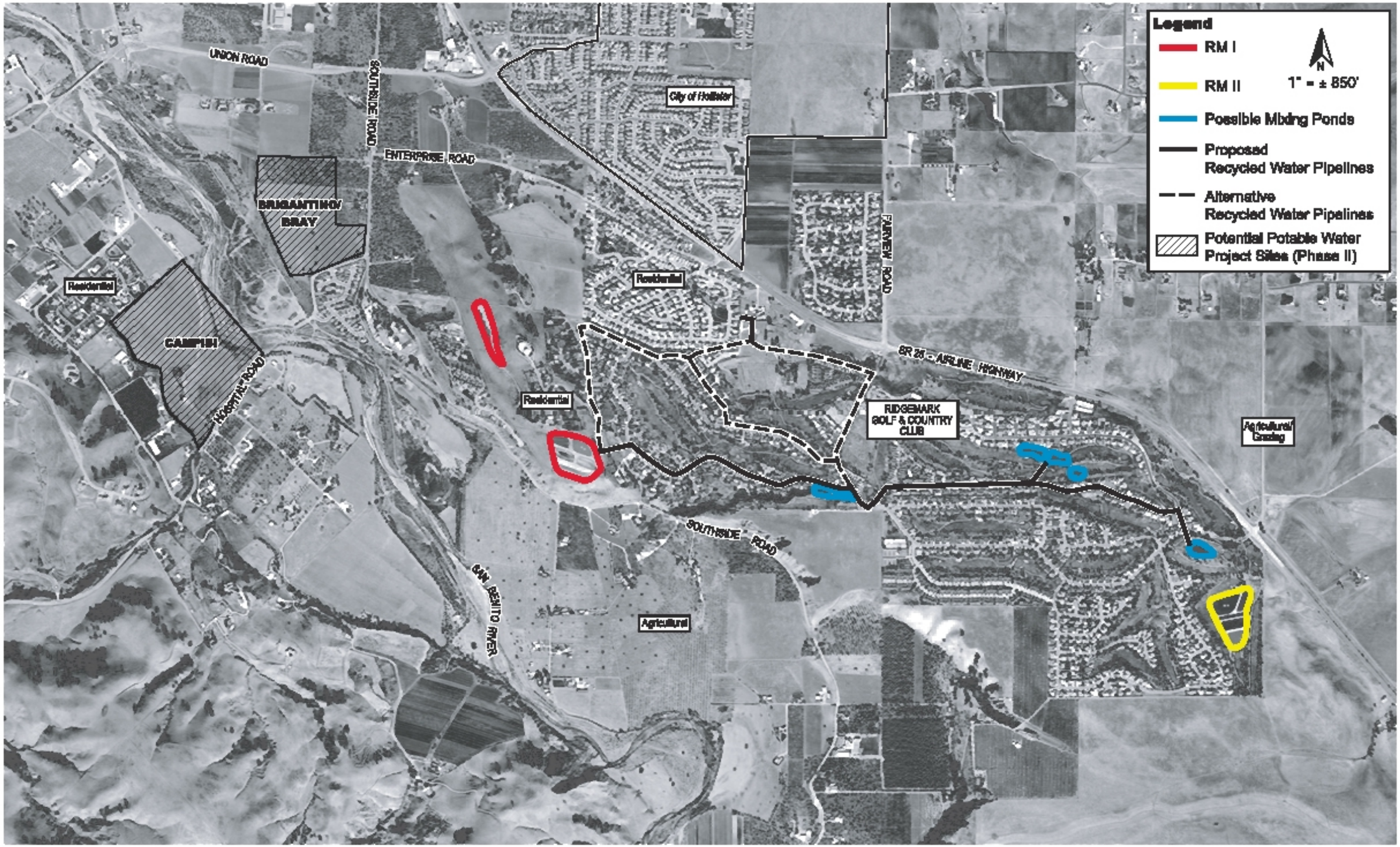


REGIONAL LOCATION MAP FIGURE 1



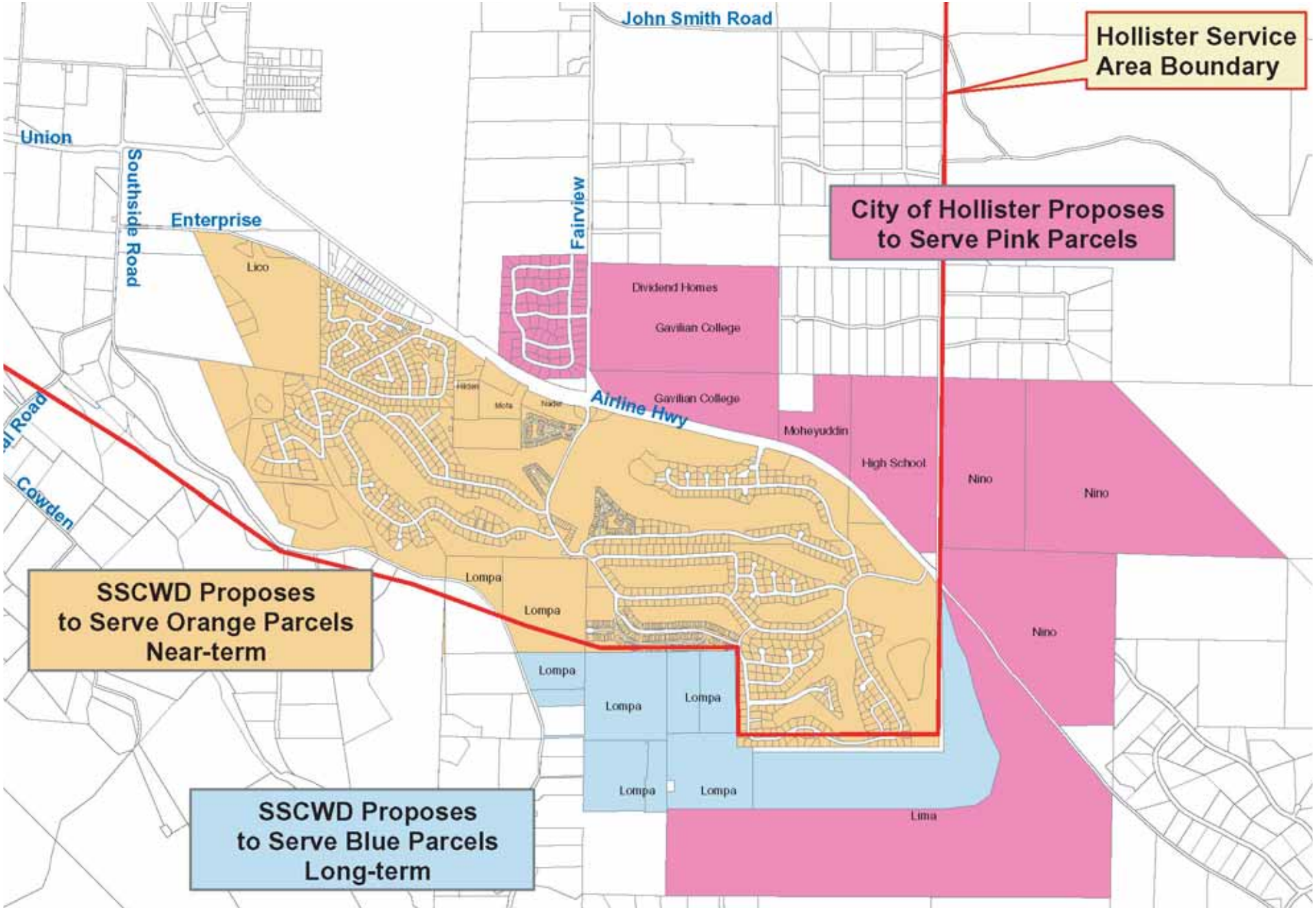
VICINITY MAP

FIGURE 2

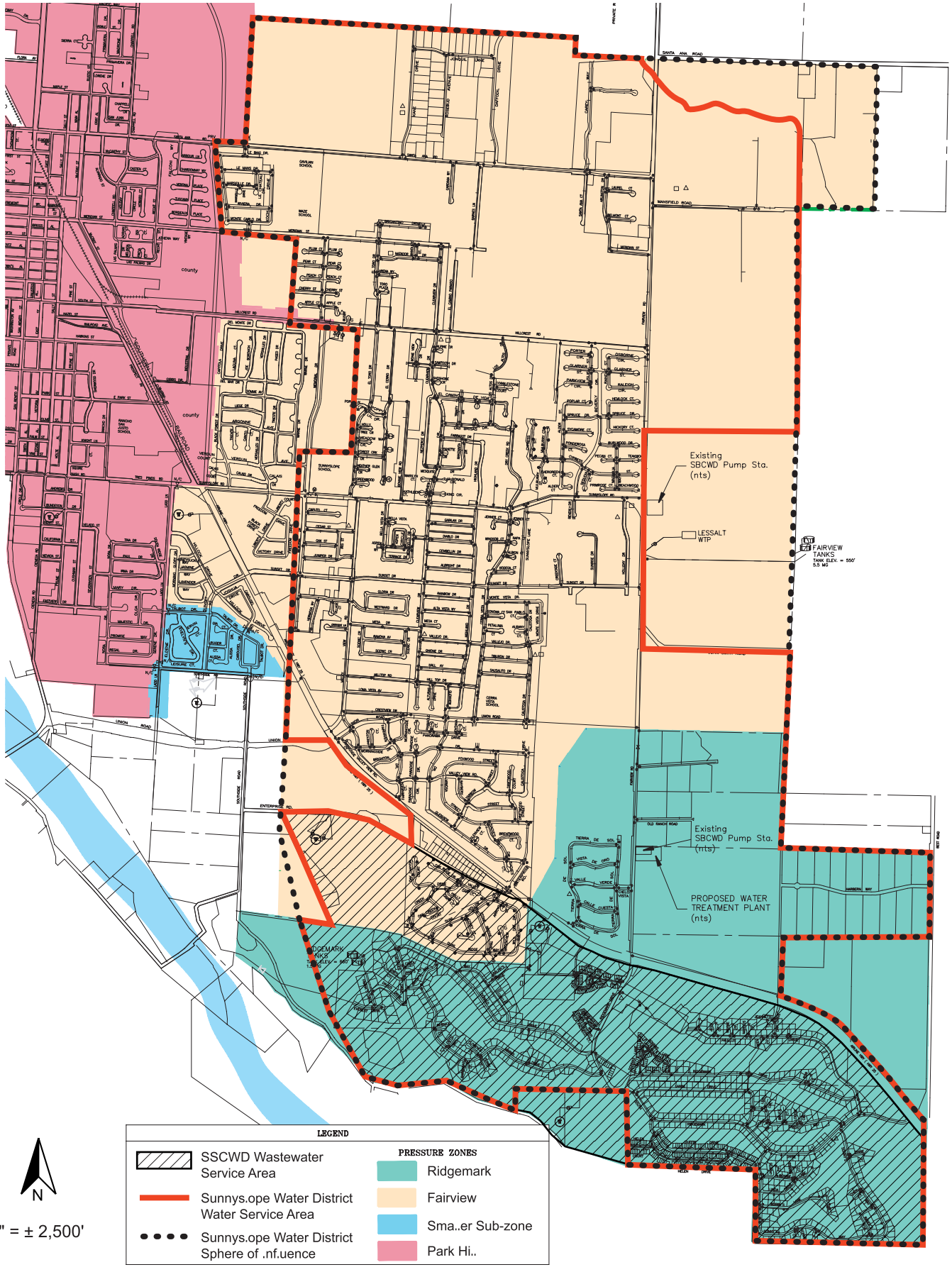


AERIAL PHOTOGRAPH AND SURROUNDING LAND USES

FIGURE 3



SSCWD WASTEWATER SERVICE AREA FIGURE 4



SSCWD WATER SERVICE AREA & PRESSURE ZONES FIGURE 5

volumes are listed below in Table 1.3-1. Future average flows were projected based on a land use analysis, population estimates, and flow factors from the District's *Final Basis of Design Report* (2008).

Table 1.3-1
Existing and Proposed Wastewater Flows

Flow Type	2005-2007 Observed Flow	Phase 1 Projection
	Gallons per Day (GPD)	
Average Daily Flow: Dry Weather (ADWF)	209,500	
Average Daily Flow: Wet Weather (AWWF)	215,400	
Peak Wet Weather Flow (PWWF)	240,300	
Average Daily Flow	212,500	350,000
Maximum Daily Flow	260,800	430,000

A description of the two basic phases of the project follow.

1.3.2 Phase 1: Project-Level Improvements and Phasing

Project-level improvements to wastewater treatment facilities would be undertaken in three steps. Wastewater treatment facility upgrades in Phase 1.a and 1.b, and the recycled water lines within the Ridgemark area (Phase 1.c) are analyzed at a project-level in this EIR.

Under the proposed project, flows from two existing wastewater treatment plants (RM I and RM II) would be combined and the treatment facilities upgraded to accommodate the combined flow and to meet regulatory wastewater treatment requirements. Wastewater treatment facilities at RM I would be upgraded to secondary treatment with biological nutrient removal. Most of the work would be within the existing boundaries of the RM I and RM II wastewater treatment facilities (ponds with aerators and various piping and pumps). The components of the project and the phasing are shown in Table 1.3-2, below (refer to Figure 6, *RM I Site Plan*, and Figure 7, *RM II Site Plan.*)

Views of the existing RM I and II facilities are shown in Photos 1 through 6.

Table 1.3-2
Proposed Project Phasing

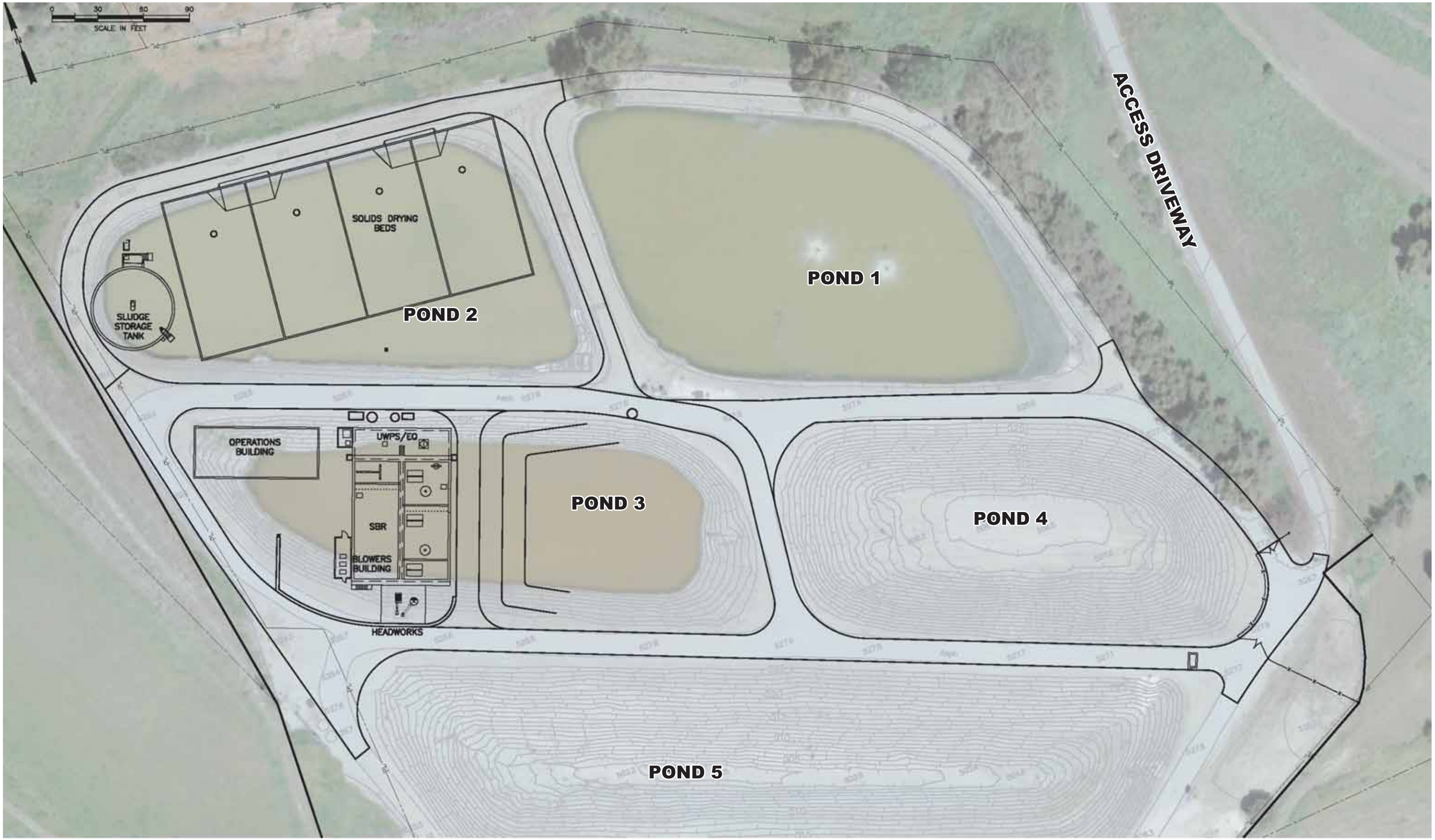
Phase 1 (2010-2012) Project-Level Analysis	Phase 2 (2011-2040) Program-Level Analysis
Wastewater Treatment Improvements	
Phase 1.a: • Installation and operation of a 0.35 MGD Sequencing batch reactor (SBR) facility at RM I • Pump station installation at RM II • Main lift station improvements • Construction of solids storage tank and solids drying beds **Phase 1.b:** • Decommissioning and clean-up of RM II • Rehabilitation of RM I Pond 1	
Recycled Water Project	
Phase 1.c: • Installation of Ridgemark area pipelines and blending station. • Installation of filters and disinfection at RM I (recycled water treatment) to facilitate recycled water use. • Recycled water use at the Ridgemark Golf Course.	**Phase 2.a: *** • Delivery of recycled water that meets wastewater requirements of the RWQCB. **Phase 2.b:*** • Delivery of recycled water that meets near term and intermediate salinity goals of the 2008 HUAWWMP, which are 500 to 700 mg/l TDS.
Salt Management Program	
Phase 1.c: • Blending of recycled water with CVP water and/or groundwater.	**Phase 2.a:*** • Potable water supply improvements: water softening by District. **Phase 2.b:*** • Potable water supply improvements: demineralization by the District. **Phases 2.a and 2.b:*** • Water Softener Ordinance

Notes:
*****Project level environmental review will be required in the future for these components.

RWQCB WDRs Compliance: Completion of Phases 1.a, 1.b, and 2a. are required in to achieve RWQCB Waste Discharge Requirements compliance for the Ridgemark Wastewater Treatment Area.

Hollister Urban Area Water and Wastewater Management Plan (HUAWWP):
Completion of Phases 1.a, 1.b, 1.c and 1.a. correspond with *Near Term* facilities modifications and improvements under the November 2008 HUAWWP.

Completion of Phases 1.a, 1.b, 1.c, 2.a, 2.b and additional steps would correspond with *Intermediate* facilities modifications and improvements under the updated draft November 2008 HUAWWP.



RIDGEMARK I SITE PLAN

FIGURE 6

RIDGEMARK II SITE PLAN

FIGURE 7

LAND AND EASEMENT TRANSFERS

FIGURE 8

Photo 1 - Hillside and access driveway below RM I, location of proposed force main. View to the west.

Photo 2 - Ridgemark I, Pond 2, view to the northeast.

PHOTOS 1 AND 2

Photo 3 - Ridgemark I, view to the south.

Photo 4 - Ridgemark I, Pond 5, view to the west.

PHOTOS 3 AND 4

Photo 5 - Pond 6 from Ridgemark I, view to the northwest.

Photo 6 - Ridgemark II, Pond 1 (foreground) and Pond 2, view to the east.

PHOTOS 5 AND 6

Individual project components are detailed below.

1.3.1.1 *Phase 1.a: Wastewater Treatment System Upgrade, Equipment Installation*

This Phase 1ncludes installation of a Sequencing Batch Reactor (SBR) to provide secondary treatment at RM I, new headworks, a solids handling facility, a transfer pump station at RM II, and upgrades to the main lift station. The new transfer pump station would be constructed to convey flows from RM II to RM I for treatment, and a new pipeline would be constructed from the main lift station on Mark's Drive (below RM I) to RM I. The improvements at the RM I treatment facility would be sized to treat wastewater flows from existing and planned growth within a defined SSCWD wastewater service area, south of Airline Highway.

The SBR would provide secondary treatment to remove BOD, TSS, and nitrogen to meet waste discharge requirements. This phase would also include removal of solids from several ponds at RM I (Pond 2 and a portion of Pond 3) as new facilities would be sited at these locations. Solids generated by the SBR at RM I would require on-site management prior to final hauling and disposal.

A new 2,790 square foot operations building is also proposed for this phase. The operations building would be approximately 26 feet in height. Three new backup generators (ranging from 30-175 kW) at RM I, RM II and Main Lift Station are proposed to replace existing standby generators or provide new service for pumps and lift stations.

Processes at RM I are described below.

Headworks Screening

A headworks facility, consisting of a screening element and grit removal element, would be installed at RM I (refer to Figure 6). Material greater than one-quarter inch in diameter would be captured by the screen in the headworks. Captured screenings would be removed and discharged to a dumpster for disposal. A grit settling chamber would remove finer, inorganic, inert, sand-like materials from the wastewater. Organic materials, which are lighter, would be separated from the grit materials and passed on to the SBR unit.

Sequencing Batch Reactor (SBR)

An SBR performs biological treatment and secondary clarification. The SBR process has several operational phases including mixed-fill, aerated-fill, reaction, settling, and decanting. During the mixed-fill phase, raw wastewater is mixed with biomass without aeration to achieve denitrification (conversion of nitrogen compounds and release of nitrogen dioxide). During aeration, biological oxygen demand (BOD) is reduced and ammonia is converted to nitrate. The reaction phase consists of aerated and non-aerated cycles where additional raw wastewater does not enter the basin. The reaction Phase 1s followed by a settling period where biomass settles to the bottom of the tank. Treated effluent is then discharged from the SBR basin through a decanter. Equalization within the SBR system is required for protecting the biological system from peak flows because it can result in the washing of biomass, or peak loads thereby upsetting treatment process. Positive displacement blowers are used for handling wastewater level variations in the reactor basin.

The SBR blower unit(s) would be housed in a Blower Building (Figure 6). This building would house the SBR equipment, effluent pumps, aerators, positive displacement blowers and other associated equipment. Acoustical louvers at air intakes would be installed, as required, to minimize noise from mechanical equipment.

Wastewater Effluent

Under Phase 1, effluent from the SBR will be pumped to one of the percolation ponds (Pond 1, 3, 4, 5 or 6) at the RM I site for disposal.

Biosolids Handling

Waste activate sludge from the SBR will be pumped to a biosolids storage tank on a daily basis. The tank will have a capacity of approximately 252,500 gallons, will be open at the top, and be primarily underground. The biosolid storage basin will be aerated and digestion initiated in the SBR will continue. During the wet season, solids will be stored and aerated in the 252,500 gallon biosolids storage tank. During dry weather periods, solids from the biosolids storage basin will be pumped to adjacent solids drying beds where water will be decanted and evaporated. The solids drying beds will be lined and cover an area of approximately 7,800 square feet. Solids in the drying beds would be turned over to avoid generation of odors. Solids will be dried to about 15 percent solids content and then hauled to a land fill that accepts Class B Solids. Annual solids disposal is estimated to be 880 wet tons per year. Solids would likely be removed about four times per year following drying cycles. As described in *Section 3.7, Air Quality*, odors would be minimized by the implementation of odor control measures specified in an operations and maintenance manual for the facility.

Operations Building

An operations building is proposed west of the SBR facility. The building would house a maintenance area, electrical room, operation and control system equipment, data recording equipment, counter space for basic water quality analysis (laboratory function), and a bathroom with shower. An 175 kW emergency diesel-fueled back up generator will be installed outside the building. The building would be approximately 2,790 square feet in size (34 feet by 82 feet).

Improvements at RM II would consist of installation of a new transfer lift station for pumping wastewater from RM II to the Main Lift Station. A new 30 kW emergency diesel-fueled backup generator is proposed to be installed at the lift station.

Proposed upgrades to the Main Lift Station include installation of three new pumps and a 50 kW emergency diesel-fueled backup generator.

Pond Filling at RM I

Pond 2 and a portion of Pond 3 would be filled to accommodate installation of the wastewater treatment system upgrades described above. Approximately 25,000 cubic yards of fill will be required to fill Pond 2 and portions of Pond 3. Fill will be obtained off-site, as available. Some fill may be obtained from Pond 6, north of the main RM I site.

1.3.1.2 *Phase 1.b: Wastewater Treatment System Upgrade, Pond Conversion*

As a part of Phase 1.b construction activities, some or all of the treatment and disposal ponds at RM II would be decommissioned. The treatment ponds would be dried out and solids that have accumulated at the bottom of the ponds would be removed and disposed.

Wastewater effluent would continue to be disposed of in percolation ponds at RM I following SBR treatment. The existing and proposed pond acreage for the two Ridgemark facilities is summarized in Table 1.3-3, below.

Table 1.3-3
Existing and Proposed Pond Sizes in Acres

Treatment Facility	Pond	Existing		Proposed	
		Size in Acres	Use	Size in Acres	Use
RM I	Pond 1	1.0	Treatment	1.3	Percolation
	Pond 2	0.8	Treatment	0	--
	Pond 3	1.0	Percolation	0.5	Percolation
	Pond 4	0.8	Percolation	0.8	Percolation
	Pond 5	1.2	Percolation	1.2	Percolation
	Pond 6	2.1	Percolation	2.1	Percolation
	Total	**6.9**	--	**5.9**	
RM II	Pond 1	1.8	Treatment	--	--
	Pond 2	0.8	Treatment	--	--
	Pond 3	1.1	Percolation	--	--
	Pond 4	1.1	Percolation	--	--
	Total	**4.8**	--	--	--
Total for Wastewater Treatment Facilities		**11.7**	Treatment and Percolation	**5.9**	Percolation

1.3.1.3 *Phase 1.c: Recycled Water Lines and Use of Blended Recycled Water*

Under this phase, disinfection treatment equipment would be installed at RM I and recycled water lines would be installed beneath existing streets to allow for distribution of recycled water from RM I to the Ridgemark Golf Course. The project would also include blending of recycled water to reduce the salinity of recycled water to be used for irrigation. Recycled water from RM I would be mixed with Central Valley Project (CVP) water supplies or groundwater in a mixing pond at the golf course and distributed through golf course irrigation system. Distribution of recycled water would be in compliance with California Department of Public Health requirements for recycled water. Phase 1.c recycled water pipeline improvements do not include any recycled water improvements outside of the Ridgemark wastewater service area.

Disinfection Treatment Equipment Installation at RM I

Treatment of effluent to meet Title 22 regulations for recycled water used will include filtration and disinfection using ultraviolet (UV) light. Cloth media filters with an influent capacity of 623,000 gallons per day are proposed to be used for filtration. The filtered effluent would be conveyed to an ultraviolet disinfection system. Three duty and one standby banks of lamps are planned for this facility. After treatment to meet regulatory requirements, the recycled water will be pumped through the distribution pipeline to the Ridgemark Golf Course irrigation ponds for irrigation uses.

Recycled Water Line Installation

Approximately 9,000 feet of recycled water lines would be installed beneath existing streets to allow for the future distribution of recycled water from RM I to the Ridgemark Golf Course (refer to Figure

3). Several routing scenarios though the Ridgemark development are being considered by the District.

Recycled Water Distribution

The initial customer for recycled water from the District's wastewater project is anticipated to be the Ridgemark Golf Course, which would use the treated water for turf areas and greens. Irrigation demand at the golf course during the period of 2003-2005 was 684 acre-feet per year (AF/yr).[6] Blended recycled water could supply approximately one-third of the golf course irrigation needs during the dry season. Alternatively or in addition to, recycled water may also be used for landscape/park irrigation for new developments in the Ridgemark area.[7]

In the future, recycled water infrastructure may also be connected to an envisioned future regional recycled water distribution system. The quantity of recycled water that may be generated to 2025 by the proposed project, if approved, is shown below in Table 1.3-4.

Table 1.3-4
Annual Projected Treated Wastewater Disposal

	RM I & II Wastewater Flow	Groundwater Percolation	Recycled Water Use*
Year	**Million Gallons**		
2008	78	78	--
2010	78	78	--
2012	84	28	56
2014	91	30	61
2016	98	33	65
2018	104	35	70
2020	111	37	74
2022	118	39	78
2024	124	42	83
2025	128	43	85

*Recycled water use estimated to begin in 2012.

Recycled water would be applied to the golf course in conformance with statewide criteria set forth in Title 22, Division 4, of the California Code of Regulations and waste discharge requirements (WDRs) established by the RWQCB and reviewed by the California Department of Public Health. These measures may include, but are not limited to, avoiding use of recycled water during periods of rainfall, avoiding contact of recycled water with drinking fountains and food, employee training, and monitoring of recycled water quality.

[6] Of the 684 AF/yr used, approximately 454 AF/yr was CVP water and 230 AF/yr was from groundwater.
[7] There are other possible future users of recycled water within the SSCWD potable water service area, such as or for proposed development along Fairview Road north of the Ridgemark area, however, the proposed project only includes recycled water use at the Ridgemark Golf and Country Club. Other future uses are speculative at this time and pipelines and other infrastructure to serve other sites would require subsequent environmental review.

1.3.2 Phase 2: Program-Level Salinity Management/Potable Water Supply Improvements

Implementation of potable water supply improvements will be discussed at a program-level in this EIR. This second phase of the project would reduce salinity in the wastewater effluent by decreasing the salinity of potable water used in the District's wastewater service area (specifically total dissolved solids (TDS), sodium, and chloride). These improvements could include demineralization and/or water softening of groundwater from wells, and would allow the District to deliver recycled water with lower salinity for irrigation. The time frame for these improvements would be approximately 2011 to 2040, and subsequent environmental review will be required for construction and operation of the potable water supply project.

Several properties west of the Ridgemark development have been identified as possible sites for water treatment facilities. These sites are located in valley areas north of Hospital Road on both sides of the San Benito River. The 58-acre Campisi property is west of the San Benito River, between Hospital Road and Cienega Road. The 34-acre Bray property is located between the San Benito River and Southside Road, north of Hospital Road (Figure 3).

The EIR will provide an overview of the possible impacts associated with the potable water supply improvements component of the long-term wastewater treatment and recycled water improvement project, but will not include site-specific analysis.

Phase 2 of the project would be undertaken in two steps, as outlined below.

1.3.2.1 *Phase 2.a: Water Softening*

The first step of Phase 2 improvements would include a new well, pump station and pipelines, storage, water softening process, drying beds, and a water softener ordinance (Phase 2.a). The anticipated, preferred technology for Phase 2.a improvements is lime softening.

1.3.2.2 *Phase 2.b: Demineralization*

The second step in Phase 2 would include groundwater demineralization through reverse osmosis (RO), and blending of this RO water with groundwater (Phase 2.b). The precise method to be used for disposal of concentrate produced from these processes is not currently known, however the anticipated, preferred technology for Phase 2.b improvements is reverse osmosis, with brine concentration utilizing evaporation ponds. Disposal methods for the resulting concentrate could include disposal at a land fill or at an ocean outfall.

1.3.3 *Land and Easement Transfers*

To accommodate the project's construction activities, the project proposes the land and easement transfer of several small properties from a private landowner to the District. In addition, the District will abandon several sanitary sewer easements to accommodate the private landowner. Temporary access and construction easements and permanent utility easements over approximately two acres of private land would be obtained by the District, and approximately one-quarter of an acre of existing utility easements would be abandoned by the District. The project would also require several lot line adjustments to affected parcels. These transfers are summarized in Table 1.3-5, and shown on Figure 8.

Table 1.3-5 Land and Easement Transfers		
Proposed Action	**Square Feet**	**Acres**
Land Transferred **to** District (in Fee Title)	41,025	0.94
Land Transferred **from** District (in Fee Title)	125	0.003
Easements Transferred **to** District	83,784	1.92
Easements Transferred **from** District	12,086	0.28

As shown in Figure 8, construction activities could take place on temporary access easements and staging areas outside District property near RM I. Use of these access easements would include the construction of approximately 370 feet of a new unimproved construction access road to a soil borrow area at Pond 6 from an existing unimproved road west of RM I (the entire access road between RM I and Pond 6 would be approximately 1,300 feet in length), and approximately 600 feet of construction access road on hillside from the main lift station to the existing paved RM I access road. The road to Pond 6 would be used for the transportation of excavated fill materials from Pond 6 to RM I to fill in Pond 2 and portions of Pond 3.

These construction activities could cause temporary impacts to geology and soils, biological resources, hydrology and drainage, and possibly cultural resources, which are discussed further in the applicable sections.

1.4 PROJECT OBJECTIVES

The primary objective of the project is to address updated standards for ammonia, nitrates, total suspended solids (TSS), and biochemical oxygen demand (BOD) in wastewater effluent, and to comply with the Regional Board's waste discharge requirements for the Ridgemark facility by January 2010.

Other objectives include:

- Plan for improvements to the District's potable water facilities that would lower salinity in wastewater effluent to meet updated standards for sodium, chloride, and total dissolved solids (TDS).

- Install infrastructure (including pipelines and treatment at wastewater treatment facilities) to meet California Department of Public Health standards for recycled water production and distribution from the Ridgemark I facility.

- Provide upgraded wastewater facilities with adequate capacity to serve projected and planned growth through 2025.

- Implement wastewater, recycled water, and potable water improvements that are cost effective and affordable to District customers in terms of water and wastewater service costs.

Table 1.4-1, below, shows during which phase each objective of the project would be addressed.

Table 1.4-1 Estimated Objective Completion by Phase	
Objective	**Project Phase**
Address updated wastewater standards for ammonia, nitrates, TSS, and BOD	Phase 1.a – 1.c
Plan for improvements to the District's potable water facilities that would meet updated standards for sodium, chloride, and total dissolved solids (TDS).	Phase 2
Install infrastructure (including pipelines and treatment at wastewater treatment facilities) to meet California Department of Public Health standards for recycled water production and distribution from the Ridgemark I facility.	Phase 1.c
Provide upgraded wastewater facilities with adequate capacity to serve projected and planned growth through 2025.	Phase 1.a – 1.c
Implement wastewater, recycled water, and potable water improvements that are cost effective and affordable to District customers in terms of water and wastewater service costs.	Phase 1 and 2

1.5 USES OF THE EIR

This EIR evaluates the environmental impacts that would likely result from the proposed project. Measures to avoid or mitigate impacts are also identified in this EIR. When an EIR determines that a project would result in significant impacts (levels of significance are identified in *Section 3.0* of this EIR under each environmental topic), agencies approving a discretionary project are required by law to do one or more of the following:

- Require changes in the project which would avoid or substantially reduce significant impacts;
- Approve one of the project alternatives of the project (which would have a lesser impact) as opposed to the project;
- Adopt a written statement of overriding considerations, which finds that specific economic, social, and other considerations make the mitigation measures or project alternative(s) infeasible;
- Find that the mitigation is the responsibility of another agency which has implemented, can or should implement the mitigation; or
- Deny the project.

It is proposed that this EIR be relied upon in issuing project-specific discretionary and other approvals necessary to implement this project as proposed. These actions include the following approvals by the agencies indicated in Table 1.5-5.

Table 1.5-1 Permits and Approvals	
Agency	**Permit or Approval**
Sunnyslope County Water District	Project and Contract Approvals for Construction
County of San Benito	Grading Permit
	Encroachment Permits for work in public rights-of-way
	Lot Line Adjustment(s)
Regional Water Quality Control Board	Waste Discharge Permit (Disposal Ponds and Recycled Water)
	National Pollution Discharge Elimination System Permit (NPDES) (General Construction) (if needed)
Monterey Bay Unified Air Pollution Control District	Air Quality Permit for Wastewater Facilities
	Diesel Back-up Generator Permits
California Department of Public Health	Recycled Water Use Review

SECTION 2.0 CONSISTENCY WITH RELEVANT PLANS AND POLICIES

This section complies with *CEQA Guidelines,* Section 15125(d), which requires an EIR to discuss any inconsistencies between the proposed project and applicable general plans and regional plans.

Regional water management for the area that includes the SSCWD is guided by the *Groundwater Management Plan for the San Benito County Part of the Gilroy-Hollister Groundwater Basin,* adopted in 2004. The *Hollister Urban Area Water and Wastewater Master Plan,* currently under development, will also apply to future actions.

The SSCWD is located within the County of San Benito and the applicable General Plan is the County of San Benito General Plan. Other applicable regional plans include the 2008 Air Quality Management Plan for the Monterey Bay Region (AQMP) and the Central Coast Basin Water Quality Control Plan (Basin Plan). The following sections discuss the consistency of the proposed project with these plans.

The SSCWD water and wastewater treatment facilities are not subject to conformance with County of San Benito zoning ordinances pursuant to Government Code Sections 53091(e) and 53096. For this reason, consistency with zoning is not discussed.

2.1 GROUNDWATER MANAGEMENT PLAN

The *Groundwater Management Plan Update for the San Benito County Part of the Gilroy-Hollister Groundwater Basin* (GWMP) includes goals and objectives for short-term and long-term management of water resources in Northern San Benito County. It is the principal plan for the management of groundwater in Hollister, San Juan Bautista, the San Benito County Water District and the Sunnyslope County Water District within the Gilroy-Hollister Groundwater Basin. The GWMP addresses surface and groundwater management as well as wastewater treatment discharges and use of recycled water supplies. The GWMP is intended facilitate the provision of reliable, sustainable, good quality water for existing and future agricultural, municipal and industrial (M&I) uses in accordance with the adopted goals and objectives of the Plan.

The overall goal of the GWMP Update is to maintain and enhance the agricultural and economic productivity of San Benito County in an environmentally responsible manner. The GWMP specifically addresses several key issues related to water quantity and water quality in the Basin. They include:

Water Quantity

- Existing imbalance of areas with high and low groundwater
- Pending imbalance of supply and demand due to planned growth
- Existing and pending inability to adequately dispose of wastewater
- Frequent reduction of long-term imported water supplies and lower quality local supplies

Water Quality

- Increasing total dissolved solids (TDS) – salts are accumulating in the Basin and constrain beneficial uses

- Hardness affects urban supplies and leads to water softeners that further add salts to the Basin
- Nitrates have accumulated in some groundwater subbasins, affecting beneficial uses
- Effective water quality protection is lacking

The 2004 GWMP is the result of a collaborative planning process by the Water Resources Association of San Benito County (WRA). The WRA is an association of the City of Hollister, City of San Juan Bautista, Sunnyslope County Water District, and San Benito County Water District. The member communities and districts of the WRA are responsible for the implementation of programs and elements described in the GWMP Update in the Northern San Benito County area. Implementation of the GWMP Update will consist of voluntary, coordinated actions by the participating communities and districts of the WRA.

2.1.1 Elements of the GWMP Included in the Proposed Project

Components of the proposed project that are identified in the GWMP as programs, projects or activities include:

- M&I Wastewater Effluent Percolation (Phase 1 and Phase 2 Improvements)
- Recycling of Wastewater Effluent for Direct Reuse [Phase 1 (blended) and Phase 2 (direct) Improvements]
- Water Softener Ordinance (Phase 2)
- Salinity Education Program (On-going and through Phase 2)
- Groundwater Treatment and Concentrate Disposal (Phase 2 Improvements)

A brief description of each of these elements as described in the GWMP follows.

2.1.1.1 *M&I Wastewater Effluent Percolation [GWMP Section 5.4.4]*

This element is the disposal of and/or storage of M&I[8] wastewater effluent through existing or new percolation ponds. Effluent percolation is the primary mechanism for wastewater effluent disposal in the groundwater basin. The GWMP notes that wastewater effluent disposed of and/or stored in percolation ponds must be treated to a sufficiently high quality to meet local groundwater quality objectives mandated by the Regional Water Quality Control Board.

The major environmental issues with effluent percolation identified in the GWMP are groundwater quality degradation and localized high groundwater from effluent percolation.

Element in the Proposed Project

The proposed project would continue to use effluent percolation for effluent disposal, especially from November through March when irrigation demand for recycled water would be minimal. Phase 1 improvements to wastewater treatment (using SBR at RM I) and ultimately demineralization of potable water to reduce the salinity of wastewater (Phase 2 improvements) would provide for an improvement in effluent water quality and allow the RM I facility to meet Waste Discharge Requirements of the Regional Water Quality Control Board. The groundwater table in the vicinity of the RM I facility is 60-200 feet below the ground surface and predicted groundwater levels would not cause any adverse effects related to soil drainage or soil liquefaction during earthquakes (see *Section 3.3, Hydrology and Water Quality* and Appendices B and C).

[8] M&I refers to "Municipal and Industrial" water users. Municipal users include residences, commercial businesses, and institutions.

2.1.1.2 *Recycling of Wastewater Effluent [GWMP Section 5.5.7]*

The GWMP notes that reuse of recycled effluent from wastewater plants is practiced widely within California. Water criteria in Title 22 of the California Code of Regulations (Title 22) govern the level of treatment and the acceptable uses for recycled water.

At the time the GWMP was prepared, approximately 3,300 acre feet per year of wastewater effluent was produced in the GWMP area and indirectly reused through percolation in the entire groundwater basin. Several possible direct users of recycled water, including the Ridgemark golf course, are identified in the GWMP.

The greatest limiting factor for the direct reuse of wastewater effluent is the high levels of total dissolved solids (TDS)[9] in the recycled water. One study referenced in the GWMP assumed blending of recycled water to achieve a 700 mg/l TDS level. The GWMP notes that as the quality of potable water improves so will the quality of recycled water. Other factors affecting the direct reuse of wastewater effluent include seasonal fluctuations in the demand for recycled water. This requires alternative wastewater disposal methods such as percolation and/or land application of effluent on unirrigated rangelands or available lands.

Element in the Proposed Project

The proposed SSCWD project includes the use of blended recycled water at Ridgemark golf course as a part of Phase 1. Direct reuse of recycled water would be feasible under Phase 2. Direct reuse will require improvements to potable water supplies to reduce TDS levels. Initially, a centralized water softening plant for groundwater treatment would be utilized and domestic water softening units that discharge salts to the sewer system would be limited under a Water Softener Ordinance. Ultimately, demineralization of groundwater to meet target TDS levels is proposed as a part of Phase 2. Percolation of wastewater effluent will continue to be used for wastewater disposal, especially from November through March when demand for recycled water for irrigation is reduced. The details of Phase 2 potable water improvements have not been determined at this time and like the 2004 GWMP Final EIR, direct reuse of recycled water is addressed at a program level in this EIR.

2.1.1.3 *Water Softener Ordinance [GWMP Section 5.3.4]*

The GWMP notes that water softeners added 2,270 tons per year (or six percent) of the total salt inputs to the groundwater basin in 2001. Although a smaller component than other sources, salts from water softeners is a controllable source of salts in the basin. The GWMP cites that urban water purveyors have implemented ordinances requiring specific types of water softeners. These water softeners are regenerated offsite to prevent the introduction of salts into the sewer system.

Element in the Proposed Project

The proposed SSCWD project includes adoption and implementation of a Water Softener Ordinance as a part of Phase 2.

[9] Total dissolved solids (TDS) is a measure of the total amount of all the materials that are dissolved in water. The concentration of total dissolved solids (TDS) in groundwater expressed in milligrams per liter (mg/L) and is found by evaporating a measured volume of filtered sample to dryness and weighing this dry solid residue.

2.1.1.4 *Salinity Education Program [GWMP Section 5.3.3]*

Implementation of salinity education for both agricultural and M&I users is described in the GWMP as crucial to managing salts in the groundwater basin. Salinity education of M&I users was assumed to occur primarily through implementation of the Water Softener Ordinance program described above.

Element in the Proposed Project

SSCWD has an on-going Salinity Education Program for District water users that would continue in association with the adoption and implementation of the Water Softener Ordinance during Phase 2 of the proposed project.

2.1.1.5 *Groundwater Treatment and Concentrate Disposal [GWMP Section 5.5.5]*

The GWMP notes that there are a number of treatment methods to improve the quality of groundwater for delivery to M&I uses. Centralized demineralization or softening facilities to remove hardness and TDS would result in reduced salt loads to the groundwater basin. Demineralization/ softening facilities would most likely be located close to existing groundwater wells.

Disposal of concentrate[10] from groundwater treatment is a major consideration. The concentrate from groundwater treatment first needs more water to be removed prior to disposal. Fueled evaporation and land evaporation are specifically discussed in the GWMP as methods of further concentrating residual salts from groundwater treatment prior to disposal. Fueled evaporation requires a relatively small area, but requires substantial energy. Land evaporation requires a large land area and can be cost-effective if a large, inexpensive area of suitable land is available for the creation of evaporation ponds.[11] Remaining salts, in a solid form or highly concentrated brine, can be trucked out of the basin and disposed of at a landfill, sold to a salt processor or conveyed (in liquid form) to the City of Watsonville Wastewater Treatment Plant for discharge through their outfall.

Element in the Proposed Project

Phase 2 of the proposed project includes groundwater treatment of potable water supplies. It is anticipated that this would be done in several steps; initially with a water softening facility and ultimately with a demineralization facility using reverse osmosis. Drying beds and/or evaporation ponds would be used to further concentrate the concentrate from the groundwater treatment facilities, as discussed in the GWMP. The concentrate then would be disposed of at a landfill or a coastal wastewater treatment plant outfall. Another option that SSCWD considered is deep well injection of concentrate into saline aquifers at depths of 1,500 feet or more. This method of concentrate disposal was mentioned as an additional option in the GWMP; however, it was not considered a likely option and the environmental impacts of this method of disposal were not evaluated in the 2004 GWMP Final EIR. Deep well injection is discussed as a Phase 2 potable water improvement alternative in this EIR.

[10] Concentrate consists of the residual minerals/salts from groundwater treatment such as water softening or demineralization.

[11] An impermeable barrier to prevent saline water in evaporation ponds from percolating into the groundwater is required.

2.1.2 Relevant Objectives and Criteria in the GWMP

The following is a summary of relevant objectives and criteria in the GWMP that apply to the proposed project. The GWMP also includes a range of Program Level Mitigation Measures for future projects. These measures are listed in relevant sections of the EIR for Phase 2 improvements.

Water Quantity Objective 1: Maintain a reliable water supply for present and future users.

> **Water Quantity Criterion 1-1:** Deliver 100% of agricultural and M&I supply in normal and dry years, and in the first critically dry year of a drought.
>
> **Water Quantity Criterion 1-2:** Deliver at least 85% of M&I demands and 75% of agricultural demands in the second and subsequent critically dry years of a drought.

Consistency: The proposed project includes a recycled water component. In the near-term and long-term, water now used for irrigation at the Ridgemark Golf Course would be replaced with blended recycled water (Phase 1) or recycled water (Phase 2). Recycled water would offset some, but not all, of the groundwater or CVP water use at the golf course. This would incrementally reduce demand on those water supplies, which would assist with maintaining a reliable M&I and agricultural water supply.

Water Quantity Objective 2: Integrate the management of groundwater, surface water, and imported water, according to the following criteria:

> **Water Quantity Criterion 2-1:** Maximize efficient use of water supply by implementing water conservation programs for both M&I and agricultural uses. For existing M&I uses, it is assumed that over the next 20 years, water demand will decrease by 1% percent per year per existing residential dwelling unit. Conservation will reduce demand from an estimated 430 gpd/du to 368 gpd/du. New development is assumed to have a demand of 308 gpd/du. Based on CVP guidelines, agricultural irrigation is assumed to be at 85% efficiency.
>
> **Water Quantity Criterion 2-2:** Provide new M&I water supplies to support planned growth within established urban (service) areas, in accordance with approved growth projections contained in the General Plans for San Benito County and the local cities.
>
> **Water Quantity Criterion 2-3:** Manage groundwater levels to maintain groundwater storage for the protection of the water rights of the overlaying landowners and for emergency storage, limiting drawdown to the historic low levels of about 1977 to preclude and/or minimize the potential for ground settlement.
>
> Maintain groundwater levels, where practical, no higher than 20-30 feet below ground surface. In portions of the Bolsa, Pacheco, Hollister East and San Juan subbasins it will be impractical to achieve these groundwater levels and subsurface drainage systems and other means of providing improved drainage conditions for the overlying uses will be required. In addition, higher groundwater levels will occur in areas adjacent to streams and where artificial percolation occurs outside of natural streams, such as in the vicinity of the percolation ponds of wastewater treatment plants, septic systems, and off stream groundwater recharge ponds.

Water Quantity Criterion 2-4: Optimize the use of groundwater storage.

Consistency: The proposed project would maximize efficient use of water supply by utilizing recycled water for golf course irrigation. Recycled water would offset some of the groundwater or CVP water use by the Ridgemark Golf Course.

Existing groundwater levels in this area are approximately 60-200 feet below the ground surface. As described in *Section 3.3, Hydrology and Water Quality*, groundwater levels in the area would not substantially increase and would not be within 30 feet below ground surface.

Water Quality Objective 1: Provide water quality that meets established objectives as described in the criteria below to meet the needs of end users.

Water Quality Criterion 1-1: Manage water resources to minimize imported salts and long-term levels of groundwater salinity to protect beneficial uses as set forth in the applicable revisions of the Regional Water Quality Control Board Basin Plan.

Water Quality Criterion 1-2: Protect groundwater resources from infiltration of nitrates and salts, as well as other substances that could adversely affect groundwater quality.

Water Quality Criterion 1-3: Deliver M&I water meeting primary and secondary water quality objectives, with emphasis on achieving the "DHS's Recommended Limit for Consumer Acceptance" of 500 mg/L for TDS and hardness of no greater than 120 mg/L as calcium carbonate (CaCO3). (It should be noted that there are no secondary standards for hardness; soft waters are typically 0-60 mg/L, 61 - 120 mg/L are moderately hard, and 121 - 180 mg/L are hard and 180 mg/L are very hard).

Water Quality Criterion 1-4: Deliver agricultural water meeting established quality parameters. In order to optimize crop yield based on the available water sources, salinity (as measured by TDS), sodium hazard (as measured by Sodium Adsorption Ratio, or SAR); and boron have been selected as key indicator parameters. The following water quality objectives for the three water quality parameters have been developed.

- Salinity: <700 mg/L TDS
- SAR: <6.5
- Boron: <0.5 mg/L
- TDS levels that range from 480 - 1920 mg/L are considered marginal for irrigation, per Regional Board Basin Plan.

Consistency: The proposed project is consistent with Water Quality Objective 1 and Water Quality Criteria 1-1 through 1-3. Criterion 1-4 does not directly apply to the proposed project. The new wastewater treatment facilities will remove ammonia and nitrate from wastewater. The use of recycled water from the RM I facility would allow for a reduction of imported salts (by reducing water demand for CVP water supplies). A Water Softener Ordinance and potable water supply treatment under Phase 2 would improve the water quality of potable water supplied to M&I[12] customers and would reduce groundwater salinity associated with percolation of wastewater in the

[12] M&I refers to "Municipal and Industrial" water users; in this case the primarily residential users within the Ridgemark Golf and Country Club development and future developments south of Airline Highway that are within the SSCWD service area.

long-term. The salinity goal for blended recycled water under Phase 1 and (non-blended) recycled water under Phase 2 is 500-700 mg/l total dissolved solids (TDS).

Although use of the recycled water on crops is not currently proposed, the Phase 1 blended recycled water or Phase 2 recycled water applied to the golf course would generally meet the water quality parameters for agricultural water.

Water Quality Objective 2: Manage water resources to meet Regional Water Quality Control Basin Plan and Department of Health Services water quality objectives.

Consistency: The primary objective of the project is to improve wastewater treatment and disposal to meet Regional Water Quality Control Board requirements. Phase 1 and Phase 2 of the project also include filtration and disinfection of effluent to meet Title 22 requirements for recycled water use prior to any transmission or application of recycled water to the golf course for irrigation use.[13] Implementation of the project, including meeting Wastewater Discharge Requirements of the Regional Water Quality Board, would be consistent with Water Quality Objective 2.

Regional Criterion 1: The programs and projects of the groundwater management plan should coordinate with regional water supply planning and projects to the extent that it is practical and feasible to do so.

Consistency: The SSCWD is coordinating with the San Benito County Water District and City of Hollister (the adjoining water and wastewater service provider to the west) on the various components of the project and on defining the boundaries of wastewater treatment service between the SSCWD and the City of Hollister's Domestic Wastewater Treatment Plant (DWTP). This coordination is being undertaken, in part, under a Memorandum of Understanding for the Hollister Urban Area Water and Wastewater Master Plan, as discussed in *Section 2.2*, below. For these reasons, the proposed project is consistent with Regional Criterion 1 in the GWMP.

Environmental Resources Objective 1: Minimize adverse effects on biological and cultural resources, including riparian habitats, habitats supporting sensitive plant or animal species, and archaeological/historic sites.

Consistency: The proposed project would not impact sensitive habitats and includes measures to avoid impacts to sensitive animal species during construction activities. Based upon a cultural resources review, Phase 1 improvements would not impact any known archaeological sites. Implementation of the project would be consistent with Environmental Resources Objective 1.

Environmental Resources Objective 2: Avoid or minimize construction impacts from the various projects contained in the GWMP Update.

Consistency: The proposed project includes measures to avoid impacts to biological resources, neighboring land uses, and storm water quality during construction. Implementation of the project would be consistent with Environmental Resources Objective 2.

[13] The Title 22 requirements refer to California Health Laws Related to Recycled Water, Title 22 California Code of Regulations, Division 4, Environmental Health.

Environmental Resources Objective 3: Minimize operation energy requirements for the projects contained in the GWMP Update.

and

Cost Effectiveness/Affordability Objective 2: The programs and projects in the groundwater management plan should maximize the use of existing facilities.

Consistency: As discussed in *Section 3.12, Energy Resources* of this EIR, Phase 1 improvements include measures such as installation of new variable speed pumps, to reduce operational energy requirements. Continued use of the RM I site for wastewater treatment, including additional treatment to meet Title 22 requirements for recycled water, would maximum the use of this facility and reduce energy use associated with the construction of additional pipelines and other infrastructure. Implementation of the project would be consistent with Environmental Resources Objective 3 and Cost Effectiveness/Affordability Objective 2.

Environmental Resources Objective 4: The environmental impacts of each element should, to the maximum extent practicable, be mitigable to acceptable levels. Project elements should maintain and, to the extent practical, enhance the local environment and contribute to the long-term sustainability of agricultural, commercial, industrial and urban land uses and activity within the basin.

Consistency: Phase 1 improvements would not result in significant unavoidable environmental impacts. The planned use of recycled water and potable water improvements (Phase 2) would improve salinity management in the area and contribute to the long-term sustainability of beneficial uses within the basin. Implementation of Phase 2 improvements could result in local impacts to agricultural resources if potable water treatment facilities, including evaporation ponds, are constructed on land used for agricultural production. The project includes program-level mitigation measures to avoid or minimize significant impacts to agricultural resources, which would be generally consistent with this objective.

2.2 HOLLISTER URBAN AREA WATER AND WASTEWATER MASTER PLAN

A partnership was formed between the City of Hollister, San Benito County, and the San Benito County Water District to work together and provide a long term vision to guide water and wastewater improvements, consistent with the General Plans of San Benito County and the City of Hollister. The three entities executed a Memorandum of Understanding (MOU) and a Statement of Intent in 2005 to develop and maintain the *Hollister Urban Area Water and Wastewater Master Plan.* The Sunnyslope County Water District also has become a party to the MOU. The MOU sets recycled water total dissolved solids (TDS) objectives of 500 mg/L, but not greater than 700 mg/L, by the year 2015. Other items considered in the MOU include discharge issues, drinking water TDS objectives, and impacts to the environment, economy, and local culture. The updated draft *Hollister Urban Area Water and Wastewater Master Plan* (HUAWWMP) available in November 2008 also sets near-term (to year 2015) goals, intermediate term (to year 2023) goals, and long term (after 2023) goals.

The November 2008 HUAWWMP updates the timing of the original goals of the MOU and discusses timing for specific projects for the various participating agencies. Near term goals for SSCWD in the HUAWWMP include building the Ridgemark Recycled Water Facilities contained in Phase 1.a, 1.b, and 1.c of the proposed project.[14] The HUAWWMP also sets near term goals for the

[14] Source: Near term goals outlined on page ES-13 of the HUAWWMP (November 2008).

SSCWD to build a water softening plant to treat groundwater for Ridgemark pressure zone as discussed in Phase 2.a of the proposed project (refer to Figure 5). Intermediate goals in the HUAWWMP identified for SSCWD include building reserve osmosis facilities which will produce water of sufficiently high quality to meet the long term goals for water quality for both drinking water and recycled water. Under the proposed project, Phase 2.b potable water improvements will supply reverse osmosis treated water to the Ridgemark area.

The proposed project specifically addresses the Ridgemark wastewater treatment area and Ridgemark pressure zone for water supply. Additional measures will be required to meet HUAWWMP goals for other areas, such as the Fairview pressure zone, within the SSCWD water service area. Water treatment improvements in other areas of the SSCWD will require additional environmental review once proposed.

Population Assumptions

The November 2008 HUAWWMP includes the population projections from the Sunnyslope County Water District's *Final Long-Term Wastewater Management Plan* (2006). The 2006 Plan projected an increase in population served by the Ridgemark wastewater treatment plant, with up to 5,137 residents served by 2025.

The population projection used for the proposed project was refined in the *Final Basis of Design Report* prepared for the SSCWD in August 2008. The service area boundaries and development assumptions for individual parcels were updated resulting in a projection of 4,929 residents in the Ridgemark area by 2025.

The projected population served by RM I in this EIR is 4,929 residents, which is slightly less than the projection of 5,137 residents in the *Final Long-Term Wastewater Management Plan.* The proposed project, therefore, would not accommodate residential population or growth greater than that assumed in the November 2008 HUAWWMP.

Objectives and Timelines

Relevant objectives and draft implementation timelines from the HUAWWMP that apply to the proposed SSCWD Ridgemark Wastewater Treatment and Recycled Water Improvements Project are discussed below.

HUAWWMP

Objective: The objective of the HUAWWMP is to provide a long term vision, through 2023, of water and wastewater management actions and infrastructure improvements for management of those resources for the Hollister Urban Area. As described in the MOU, the HUAWWMP provides a comprehensive plan including: (1) capacity and estimated cost of physical facilities, and (2) an implementation program including institutional agreements, engineering, California Environmental Quality (CEQA) compliance, permitting, financing, coordination with ongoing projects and programs, stakeholder outreach, and scheduling.

Discussion: The HUAWWMP identifies various modifications and improvements to water and wastewater facilities to be carried out in the near term (to 2015), intermediate term (to 2023) and long term (after 2023).

In the near term, the HUAWWMP notes that SSCWD will implement a softening program in the Ridgemark area and upgrade the Ridgemark Wastewater Treatment Plant in order to be compliant with its regulatory requirements. In addition, the first phase of groundwater demineralization facilities in the Hollister Urban Area would be completed, including demineralization at one SSCWD well.

In the intermediate term (to 2023), a second phase of demineralization facilities within the Hollister Urban Area, may be considered. The second phase of demineralization within the Hollister Urban Area will be dependent on water demands and the ability to optimize water quality distribution with only near term demineralization facilities along with distribution system improvements.

The updated draft HUAWWMP (November 2008) contains the original MOU goals, with modification of the original date of compliance from 2015 to a later date of 2023.

Consistency: The proposed project includes facilities identified for the Ridgemark area and the proposed phasing of the project. Both Ridgemark Phase 1.a, Phase 1.b, and Phase 1.c and Phase 2.a improvements are proposed in the near term and Phase 2.b improvements are proposed in the near to intermediate term, which is generally consistent with timeframes identified in the November 2008 HUAWWMP (for Ridgemark only).

Further improvements for brine disposal capacity and groundwater treatment capacity in other areas served by the SSCWD will be required to fully meet intermediate goals of the HUAWWMP to provide sufficient water quality and quantity in the greater Hollister Urban Area. The proposed project and this EIR do not address implementation of these additional improvements.

As noted above, the MOU outlines principles and objectives for development of the HUAWWMP. Relevant principles and objectives from the MOU that apply to the proposed SSCWD Ridgemark Wastewater Treatment and Recycled Water Improvements Project are discussed below.

MOU

Principle 2.1.1: The Hollister Domestic Wastewater Treatment Plan is the primary wastewater treatment plant for the Hollister Urban Area including areas within the County that are designated to be served by that facility.

and

Objective 2.2.4: Within the Hollister Urban Area all wastewater shall be treated at a central wastewater treatment plant and City and County General Plans and supporting public service plans and implementing Ordinances/Regulations shall be consistent with that requirement. This provision shall not preclude satellite wastewater separation plants for the recovery of water for local recycling.

Consistency: Under the Plan, SSCWD may independently construct a wastewater treatment plant.[15] The project proposes to construct wastewater treatment improvements for local recycling, consistent with the MOU.

Principle 2.1.2: The standards for the quality of wastewater to be discharged (percolated, reused or discharged to surface water) shall be developed and agreed to by the

[15] Source: *City of Hollister Domestic Wastewater System Improvements and San Benito County Water District Recycled Water Facility Project Final EIR* (page 2-11**).**

City of Hollister, San Benito County and the San Benito County Water District and shall include appropriate consideration of regional issues. These standards shall be the most stringent of local standards, state or federal regulations and shall include careful consideration of anticipated future regulation.

Consistency: The proposed Phase 1 improvements include installation and operation of a sequencing batch reactor (SBR) to improve the quality of effluent from RM I to meet RWQCB discharge requirements for nitrate, ammonia, biological oxygen demand (BOD), TSS and pH. The wastewater facility layout at RM I allows for the addition of future treatment modifications to address future regulations. Modifications to the wastewater system also would allow for future modifications to a centralized system to meet future regulations.

Phase 2 improvements, which are addressed at a program-level in this EIR, are planned to reduce salinity (TDS, sodium and chloride) of the potable water supply resulting in lower salinity wastewater effluent. Phase 2 improvements result in wastewater effluent that meets RWQCB discharge requirements for salinity constituents.

Principle 2.1.3: The selection of wastewater treatment processes and disposal methods shall include careful consideration of future wastewater disposal requirements and provision for maximum reuse of wastewater. The selection of wastewater disposal options and sites shall be agreed to by the City of Hollister, San Benito County and San Benito County Water District provided that disposal shall not:

a. Impact drinking water supplies or negatively impact adjacent land uses or property values unless fully mitigated to the satisfaction of the City of Hollister, San Benito County and San Benito County Water District, or

b. Be inconsistent with applicable General Plans or Policies including preservation of agricultural land, or

c. Be or result in conditions inconsistent with the quantity, quality, or groundwater levels objectives of groundwater management plans for the area of disposal.

Consistency: The proposed Phase 1 improvements include installation and operation of a SBR unit to improve the quality of effluent from RM I to meet RWQCB discharge requirements for nitrate, ammonia, BOD, TSS, and pH. Filtration and disinfection in conformance with Title 22 regulations for recycled water use is also proposed to allow use of some of the effluent from the RM I for irrigation of the Ridgemark golf course. The wastewater facility layout at RM I allows for the addition of future treatment modifications to address future regulations.

Effluent from RM I would be disposed of by percolation and/or reuse recycled water use. Based upon a simulation of groundwater conditions, the projected percolation of effluent at RM I would not result in adverse impacts to drinking water supplies, raise groundwater levels substantially, or result in impacts to adjacent land uses (refer to *Section 3.3, Hydrology and Water Quality* in this EIR).

Phase 2 improvements, which are addressed at a program-level in this EIR, would result in reduced salinity (TDS, sodium and chloride) in wastewater effluent. Phase 2 improvements would result in

wastewater effluent meeting RWQCB discharge requirements for these constituents. Continued percolation of wastewater effluent would not adversely impact drinking water supplies, raise groundwater levels substantially, or result in impacts to adjacent land uses based upon the analyses included in this EIR.

Phase 2 improvements could involve the use of evaporation ponds or drying ponds as part of the disposal process for concentrate from potable water treatment facilities. If these facilities are constructed on prime farmlands, this could result in impacts to agricultural resources. Facilities required in Phase 2 are addressed at a program level in this EIR and additional environmental review will be required when the location of these facilities are determined.

Principle 2.1.4: Urban water supply including as appropriate blending of treated surface water and ground water, removal of hardness and other minerals from groundwater to provide urban water users with uniform water quality, shall minimize the need for water softeners, assure reliability of the urban water supply and support direct use of urban waste water. The urban water supply shall include provision(s) for drinking water service to areas in and adjacent to the Hollister Urban Area where Health and Safety issues exist.

Consistency: Phase 2 improvements include the removal of hardness and other minerals from groundwater used as a potable water supply. This would minimize the need for water softeners and facilitate direct use of recycled water.

Principle 2.1.5: Surface water and groundwater supplies shall be managed to sustain the area water supply and manage groundwater levels to avoid negative impacts on overlying land uses.

Consistency: Under the proposed project, the capacity of the RM I facility would increase and effluent from the facility would increase as planned residential development is constructed and occupied. Although effluent is projected to increase, the amount of effluent disposed of by percolation at RM I would be reduced with implementation of the recycled water program included in the project. In the vicinity of RM I, groundwater levels are approximately 60-200 feet below the ground surface and they do not currently adversely effect overlying land uses. Modeling of groundwater levels for a sequence of different scenarios was undertaken to simulate various changes in land use, water use, water quality and wastewater management in the SSCWD and Hollister areas as part of an assessment of the impacts of the project.[16] Based on this analysis, the proposed project would not result in negative impacts to water supply or overlying land uses (refer to Section 3.3 Hydrology and Water Quality).

Principle 2.1.6: The standards for the quality of potable (drinking) water delivered to urban users shall be developed and agreed to by the City of Hollister, San Benito County and the San Benito County Water District and shall include appropriate consideration of regional issues while focusing on economic and health impacts. These standards shall to be the most stringent of local standards, state or federal regulations and shall include careful consideration of anticipated future regulation.

Consistency: Phase 2 improvements include the removal of hardness and other minerals from

[16] Source: Gus Yates, Consulting Hydrologist, *Simulation of Impacts of Wastewater Alternatives on Groundwater Flow and Salinity*, July 2008. Refer to Appendix C.

groundwater used as a potable water supply to meet the objectives of 2.2.2.

Principle 2.1.7: The impacts of water supply and treatment and wastewater treatment and disposal including reclamation on the culture, economy and environment of the City of Hollister and San Benito County shall be carefully evaluated and negative impacts minimized. The impacts considered shall include, but not be limited to, impacts on air quality, surface water and groundwater quality and quantity, rates and charges including connection/impact fees, property values, industry and business, preservation of agriculture and agricultural land, and aesthetics.

Consistency: This EIR evaluates the environmental impacts of the proposed wastewater treatment and recycled water improvements project. Issues addressed include land use, geology and soils, hydrology and water quality, biological resources, hazards and hazardous materials, traffic and transportation, air quality, noise, cultural resources, visual and aesthetic resources, utilities and services, and energy.

The SSCWD *Wastewater Rate and Connection Fee Study* (November 2007) includes an evaluation of fees and rates. Impacts from changes in rates and fees are not addressed in this EIR as they are not expected to result in physical changes to the environment.

Principle 2.1.8: Water and wastewater management to protect and sustain the local surface and groundwater supplies of San Benito County.

Consistency: Overall, implementation of the project would reduce nutrient and salt loads to the groundwater basin. As described above, the project includes a reduction of nitrate and ammonia in wastewater and a reduction in the salinity of potable water. Proposed recycling of wastewater effluent would incrementally reduce water supply demand and importation of salts into the groundwater basin from CVP water.

Objective 2.2.2: Drinking water shall have a TDS concentration of not greater than 500 mg/l and a hardness of not greater than 120 mg/l (Calcium Carbonate).

Consistency: Phase 2 potable water supply improvements would be designed to meet this objective.

Objective 2.2.3: Recycled wastewater, shall have a target TDS of 500 mg/l and shall not exceed 700 mg/l TDS. To meet this objective, the wastewater treatment plant(s) shall include provisions(s) for demineralization. This objective shall be met first by rigorous source control including, but not limited to, the elimination of on-site regenerating water softeners and second by demineralization. Blending recycled water with San Felipe water is ONLY an interim measure for achieving recycled wastewater quality objectives. The recycled wastewater objective shall be met by the two measures identified above and the objectives of Section 2.2.2 as soon as practical and not later than by 2015.

Consistency: The project includes a series of actions in Phase 2 to meet this target TDS for recycled water. Initially, water softening would be used and a Water Softener Ordinance prohibiting use of on-site regenerating water softeners would be adopted (although water softening alone will not allow the project to meet this objective). Ultimately, demineralization of some or all of the M&I potable water supply would be undertaken as a part of Phase 2 improvements.

As a part of Phase 1, recycled water would be blended with groundwater or CVP water (also known as San Felipe water). The TDS of this blended water is anticipated to be approximately 700 mg/l TDS. This is proposed to only occur in the near term, prior to implementation of Phase 2 improvements starting in approximately 2011-2014.

2.3 CENTRAL COAST BASIN WATER QUALITY CONTROL PLAN

The Regional Water Quality Control Board has developed and adopted a Water Quality Control Plan (Basin Plan) for the Central Coast Basin. The Basin Plan is a master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the Central Coast region.[17] The Regional Board first adopted a complete water quality control plan in 1975 and the last major revision was adopted in 1994.

The Basin Plan provides a program of actions designed to preserve and enhance water quality and to protect identified beneficial uses. The project site is within the Pajaro River watershed and beneficial uses for the Pajaro River include, but are not limited to, Municipal and Domestic Supply, Agricultural Supply, Ground Water Recharge and Wildlife Habitat. The Basin Plan meets the requirements of the U.S. Environmental Protection Agency, and establishes conditions related to discharges that must be met at all times. The Basin Plan addresses both surface waters and groundwater.

The implementation portion of the Basin Plan includes descriptions of specific actions to be taken by local public entities and industries to comply with the policies and objectives of the Basin Plan. These include measures for salt discharge and erosion and sediment control (nonpoint source management). The specific groundwater quality objectives identified in the Basin Plan for the Hollister and Tres Pinos subareas of the Pajaro River sub-basin are listed in Table 2.3-1.

Table 2.3-1
Basin Plan Groundwater Quality Objectives*

Constituent	Hollister Subarea (mg/L)**	Tres Pinos Subarea (mg/L)
Total Dissolved Solids (TDS)	1,200	1,000
Chloride (Cl)	150	150
Sulfate (SO_4)	250	250
Boron (B)	1.0	1.0
Sodium (Na)	200	150
Nitrogen (N)	5	5

*Objectives shown are median values based on data averages; objectives are based on preservation of existing quality or water quality enhancement believed attainable following control of point sources.
**mg/L = milligrams per liter

The Basin Plan also includes the following principals for recycled (reclaimed) water use:

- Water quality management systems throughout the basin shall provide for eventual

[17] The 11,274 square mile Central Coastal Region encompasses all of Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties, as well as the southern one-third of Santa Clara County, and small portions of San Mateo, Kern, and Ventura Counties.

wastewater reclamation, but may discharge wastes to the aquatic environment (with appropriate discharge requirements) when wastewater reclamation is precluded by processing costs or lack of demand for reusable water.

- The number of waste sources and independent treatment facilities shall be minimized and the consolidated systems shall maximize their capacities for wastewater reclamation, assure efficient management of, and meet potential demand for reclaimed water.

***Consistency*:** The project includes measures to improve the quality of wastewater effluent and meet the waste discharge requirements of the Regional Water Quality Control Board as well as provide for erosion and sedimentation control during construction and post-construction periods, in conformance with the Nonpoint Source Program administered by the Central Coast Regional Water Quality Control Board. Phase 1 improvements would result in reduced nitrogen concentrations in wastewater effluent percolated at RM I and applied to the golf course as recycled water. Implementation of Phase 2 improvements would reduce the salinity (TDS, chloride, sodium concentrations) of the wastewater effluent, which would reduce TDS in groundwater over time. The wastewater treatment facilities at RM I would assure efficient management of recycled water in the Ridgemark area. For these reasons, the project is consistent with the Basin Plan.

2.4 MONTEREY BAY UNIFIED AIR POLLUTION CONTROL DISTRICT (MBUAPCD) 2008 AIR QUALITY MANAGEMENT PLAN FOR THE MONTEREY BAY REGION (AQMP)

The federal Clean Air Act governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. At the federal level, the United States Environmental Protection Agency (USEPA) administers the Clean Air Act (CAA). The California Clean Air Act is administered by the California Air Resources Board (CARB) at the State level and by the Air Quality Management Districts at the regional and local levels. The Monterey Bay Unified Air Pollution Control District (MBUAPCD) regulates air quality at the regional level.

The MBUAPCD is primarily responsible for assuring that the National and State ambient air quality standards are attained and maintained in the San Benito County Area. MBUAPCD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities.

The MBUAPCD 2008 Air Quality Management Plan for the Monterey Bay Region (AQMP) addresses attainment of the State ozone standard. MBUAPCD has included emissions related to population growth in the AQMP using projections adopted by the Association of Monterey Bay Area Governments (AMBAG).

2.4.1 MBUAPCD Rule 216

MBUAPCD Rule 216: "Permit Requirements for Wastewater and Sewage Treatment Facilities" requires that new or modified waste treatment facilities be consistent with the population projects in the latest AQMP approved by the MBUAPCD Board. The AQMP relies on population forecasts from AMBAG. AMBAG has provided a consistency determination with the AQMP for the project (Appendix F).

Consistency: For this project, consistency with population forecasts is determined by comparing project build-out population at the year of project completion with the appropriate five-year forecast increment for the jurisdiction that the project is located (i.e., San Benito County). Projects or plans that would not cause the estimated cumulative population to exceed forecasts are considered consistent with air quality planning efforts. According to AMBAG, this project is consistent with the 2008 regional forecasts for San Benito County and the *Air Quality Management Plan*, and therefore also would be consistent with Rule 216. A letter from AMBAG documenting the consistency determination is included in Appendix F. As described in *Section 3.7, Air Quality*, the project's direct and indirect emissions of ozone precursor pollutants would be below MBUAPCD significance thresholds. The project will also be required to meet permit requirements for modifications to wastewater treatment facilities. Therefore, project emissions are not anticipated to affect attainment and maintenance of ambient air quality standards for ozone.

2.5 COUNTY OF SAN BENITO GENERAL PLAN

The RM I and RM II facilities are located in an unincorporated area of San Benito County and the SSCWD provides services to unincorporated areas of the county. Some of the individual components of the project, such as construction of the wastewater treatment facilities, may not be subject to discretionary actions or permits by the County; however, the overall conformance of the project with the plans and policies of the County of San Benito is discussed in the following section. To assist the reader, a summary of the text discussion is provided in Table 2.5-1.

2.5.1 Overview

The County of San Benito General Plan is a comprehensive plan which defines the goals, objectives and policies used to define the direction, character and composition of future land use development in the unincorporated areas of the County. Policies in the General Plan are intended to protect and enhance those features and services that contribute to the quality of life in the County.

2.5.2 Land Use Element Goals, Objectives, and Policies

The County's Land Use goals encourage maintenance of the County's rural atmosphere and development of a growth management program that will stabilize population growth, provide for housing for a full spectrum of the population, and provide for public health, safety and general welfare. Objectives and policies that address these goals include the protection of prime agricultural areas, direction of future County growth to areas which are neither environmentally sensitive nor of substantial agricultural importance, preservation of the County's historic identity and integrity, provision of land use designations to ensure long-term preservation of the County's natural resources (including soil, water, ridgeline vistas, and air quality), and establishment of policy and programs to allow population growth while providing an adequate level of protection for public health, safety, general welfare and school and governmental services.

Table 2.5-1
Summary of Project Consistency with the County of San Benito General Plan

Goals and Policies	Phase 1 Improvements		Phase 2 Improvements	
	Project is Consistent	Project is Not Consistent	Project is Consistent	Project May Not Be Consistent
Land Use Element				
Goal 1: Rural atmosphere	X			X*
Goal 7: Maintain character and amenities while providing for growth	X		X	
Policy 2: Uses in agriculturally designated areas	X			X*
Policy 3: Protection of soil resources	X			X*
Policy 4: Land use conflicts with agricultural operations	X		X	
Policy 32: Hazards and adequate mitigation on environmentally sensitive lands	X		X	
Policy 33: Avoid locating in environmentally sensitive area	X		X	
Open Space and Conservation Element				
Goal 1: Preserve natural wildlife habitats	X		X	
Policy 2: Maintain corridors for habitat	X		X	
Policy 3: Mitigation for wetland development	X		X	
Goal 2: Orderly and efficient development	X		X	
Goal 3: Natural resources	X		X	
Policy 31: Wastewater treatment	X		X	
Policy 38: Hazardous lots	X		X	
Policy 42: Flood hazard	X		X	
Noise Element				
Policy 17: Construction noise	X		X	
Policy 18: High noise emission	X		X	
Seismic and Safety Element				
Policy 2: Critical facilities and High Hazard Areas	X		X	
*=Applies to large scale evaporation ponds in flat areas that could impact prime agricultural resources.				

Land Use Element goals, objectives, and policies applicable to the project include:

Goal 1: To maintain the County's rural atmosphere.

Objectives:
a) To protect prime agricultural areas in order to preserve them for the present and future agricultural production vital to the County.
b) To direct future County growth to areas which are neither environmentally sensitive nor of substantial agricultural importance.
c) To protect hillsides and grazing lands with grades over 30 percent.
d) To utilize agricultural and open space lands to help define urban and rural residential areas.

Goal 7: To maintain the character and the natural amenities of San Benito County while providing for its growth.

Objectives:
a) Preserve the County's historic identity and integrity.
Provide land use designations to ensure long-term preservation of the County's natural resources including soil, water, ridgeline vistas, and air quality.

AGRICULTURE POLICIES

Policy 2: The type of uses allowed within the agriculturally designated areas shall be related to the suitability of the soil resources, climate and water supply. The types of uses allowed on most agriculturally designated areas within the County include agriculture, agricultural processing, grazing, land in its natural state, wildlife refuges, and low intensity residential. Uses subject to use permit approval include low intensity recreational facilities, mineral extraction and processing, and also institutional uses that, by their nature, should be located in developed areas.

Policy 3: Grade 1 soils as defined in the Soils Survey of San Benito County shall be the highest priority for protection of soil resources.

Action

a) Development proposals in the following locations will be exempt from Policy 3.
   i. Grade 1 soils located within the Sphere-of-Influence of a public sewer and water district.
   ii. A parcel surrounded by property developed at the maximum density allowed in the applicable zoning category on at least three sides.
   iii. Grade 1 soils in the Soils Survey of San Benito County that have been determined to be Grade 2 or less from an on-site soils test performed by a soils engineer.
   iv. Grade 1 soils in the Soils Survey of San Benito County that do not have a historical agricultural use.
   v.

Policy 4: Development proposals adjacent to Grade 1 agricultural lands and soils suitable for the production of row crops, flowers, or orchards shall be required to mitigate potential land use conflicts with agricultural operations.

Action

a) Development proposals shall provide a non-development buffer beginning at the property line of the proposed development.
b) Development proposals shall not be allowed to increase the volume or velocity of stormwater runoff to adjoining agricultural lands.
c) Landscaping plans for the non-development buffer areas shall be reviewed to ensure that vegetation will not create intrusive shade, a habitat for pests, or other nuisance to the agricultural operator.

OVERALL COUNTY POLICIES

Policy 32: Specific development sites shall be free from the hazards identified within the Open Space and Conservation Element Maps (e.g., faults, landslides, hillsides over 30% slope, flood plains). The site shall also be on soil suitable for building and maintaining well and septic systems (i.e., avoid impervious soils, high percolation or high groundwater areas, set back from creeks). Absent adequate mitigation, development shall not be located on environmentally sensitive lands (wetlands, erodible soil, archaeological resources, important plan and animal communities).

Policy 33: Specific development sites shall avoid, when possible, locating in an environmentally sensitive area (wetlands, erodible soils, important plant and animal communities, archaeological resources).

Consistency: Phase 1 improvements, located with the Ridgemark Golf and Country Club in previously developed areas, would not affect agricultural resources. As a site has not been selected for potable water treatment and concentrate disposal as a part of Phase 2, the extent of possible impacts to agricultural resources from potable water improvements is unknown. It is likely, however, that evaporation ponds would be located on flat lands suitable for agricultural production. Potential sites may contain Grade I soils (as defined by the San Benito General Plan using the Storie Index[18]). A number of policies in the San Benito County Plan (in both the Land Use and Open Space Elements) address the conservation of agricultural lands and call for the highest level of protection for sites with Grade I soils.

Phase 2 improvements are not anticipated to adversely effect neighboring agricultural operations. Lined evaporation ponds would not conflict with adjacent agricultural operations or require a substantial buffer to avoid potential land use impacts.

Based upon the analysis in this EIR, Phase 1 improvements would not directly impact environmental sensitive sites. Activities proposed under Phase 2 are a framework for implementation of potable water improvements to improve groundwater water quality. As noted above, a site has not been selected for Phase 2 improvements, but possible locations would likely impact Prime Farmland. The project includes Program Mitigation measures to avoid or off-set impacts to sensitive habitats, such as wetlands or riparian corridors. Implementation of these program mitigation measures would be consistent with Policies 32 and 33.

[18] The Storie Index is a soil resource classification system referenced in the San Benito County General Plan. Storie Index ratings express numerically the relative degree of suitability, or value, of a soil for agriculture. Four factors are considered in the index rating: profile characteristics, surface texture, slope, and other conditions such as erosion, alkali and low fertility. The Storie Index ranges from 1 to 100 and the corresponding soil grades range from 1 to 6. A Storie Index rating of 80 to 100 is equivalent to Grade 1, which represents no limitations. A rating of 60 to 79 is equivalent to Grade 2, wherein the soil is suitable for most crops, even though it may have minor limitations.

The proposed project is generally consistent with the Land Use goals, objectives, and policies of the County of San Benito General Plan, with the possible exception of impacts to Prime Farmland.

2.5.3 Open Space and Conservation Element Goals, Objectives, and Policies

The Open Space and Conservation Element of the County of San Benito General Plan includes a range of goals and policies that address the preservation of resources, avoidance of environmental hazards, and the provision of outdoor recreation resources.

The County's goals regarding the preservation of natural resources call for the preservation of prime agricultural areas, significant mineral lands, plant and animal life (with emphasis on threatened or endangered species), habitat for fish and wildlife, watersheds, wetlands, and rivers. Goals and objectives also address conservation of natural recharge areas through establishment of groundwater conservation programs, establishment of programs for more efficient water use in the County, and elimination of groundwater overdraft.

The County's policy on wastewater treatment calls for wastewater treatment systems to be designed to ensure the long-term protection of groundwater resources in San Benito County. It also states that domestic wastewater treatment systems should be required to use tertiary wastewater treatment as defined by State Title 22.

The Open Space and Conservation Element of the General Plan discourages development in areas that are environmentally hazardous due to earthquake faults, landslides and erosion, steep slopes, floodplains, and fire hazard.

Goals related to recreation include providing a well-balanced system of recreation, recognizing the natural, recreational, cultural, and historical attributes of San Benito County. Objectives for meeting these goals include the preservation of existing historic resources and recognition of Native American and archaeological resources.

Open Space and Conservation Element goals and policies applicable to the project include:

Goal 1: To preserve natural wildlife habitats, including environmentally significant areas.

Objectives:
1. To preserve existing plant and wildlife ecological habitats.
2. To preserve riparian habitats and valuable watersheds.

Policy 2: Maintain corridors for habitat

In rural areas, road and development sites shall be designed to maintain habitat connectivity with a system of corridors for wildlife or plant species and avoiding fragmentation of open space areas. Measures to maintain the long-term health of the plant and animal communities in the area shall be incorporated into project design such as buffers, consolidation of/or rerouting access, transitional landscaping, linking nearby open space areas, and habitat corridors.

Policy 3: Mitigation for wetland development

Development shall be sited to avoid encroachment on wetlands. Mitigation shall be required for any development proposals that have the potential to reduce wetland

habitat from primary or secondary effects of the development.

Goal 2: To encourage the orderly development of identified concentrations within the County, utilizing the infilling of existing developed areas and communities, along with an orderly and efficient development plan for public and private services (water and sewer districts).

Goal 3: NATURAL RESOURCES
To provide for the conservation, development, and utilization of natural resources, including water and its hydraulic force, water quality, forests, soils, rivers and other waters, fisheries, wildlife, minerals, energy and other natural resources.

Objectives:

2. Preserve the natural wildlife habitats, including Environmentally sensitive areas.
4. The protection of prime agricultural areas to preserve them for present and future agricultural production vital to the County.
15. To direct land uses that could contribute to the degradation of water quality to alternative locations.
17. To provide for the safe utilization of groundwater resources, mineral deposits, and other natural resources in order to conserve and protect them for future utilization.
18. To develop programs for recycling of renewable resources and the conservation of natural resources (water, gas, electricity, fuel, refuse).

Policy 7: It is the policy of the County to minimize erosion resulting from grading and cutting and native tree removal for all development proposals.

Policy 9: It is the policy of the County to cooperate with the Regional Water Quality Control Board to improve water quality problems identified for the County, to maintain water quality on all drainage, and to develop policies and programs for the protection and enhancement of habitat for fish on major tributaries to the Pajaro River (San Benito River, Pacheco Creek) and water quality in the Silver Creek watershed.

Policy 31: Wastewater treatment

Wastewater treatment systems shall be designed to ensure the long-term protection of groundwater resources in San Benito County. Septic systems shall be limited to areas where sewer services are not available and where it can be demonstrated that septic systems will not contaminate groundwater. Every effort should be made in developing and existing developed areas to reduce the use of septic systems in favor of domestic wastewater treatment. Domestic wastewater treatment systems shall be required to use tertiary wastewater treatment as defined by Title 22.

Policy 38: Development of existing hazardous lots

It is the policy of the County to prohibit new development on existing lots of record which are entirely located within hazardous areas (slopes greater than or equal to 30%, flood plain, landslide hazard, fault, unstable or erosive soils) unless no alternative exists.

Policy 42: Flood hazard

> One of the County's prime responsibilities is for the health, safety and welfare of its citizens and property. Because the County recognizes the inherent dangers of construction or development within a flood prone area, it shall be the County's policy to discourage development within areas identified as potential flood hazard areas. Furthermore, it is the County's policy to protect and preserve the 100-year flood plain on the most recently adopted FEMA maps or other maps as wetland resources, watersheds, and tributaries as natural resources for water supply, groundwater recharge, riparian habitat, and fishes.

Consistency: To the extent that the Phase 1 and Phase 2 of the project provides a program to improve water quality, it is consistent with the Open Space and Conservation Goals in the General Plan. The proposed SBR facilities would initially improve treatment to a secondary level with a future phase to provide tertiary treatment by approximately 2012. The project provides for the use of recycled water in accordance with State Title 22 requirements. This would protect groundwater and surface water resources by reducing future effluent percolation in percolation ponds. Planned improvements to wastewater treatment facilities at RM I would improve the quality of effluent, consistent with the County's policy to ensure the long-term protection of groundwater resources. The project also considers future growth consistent with the County of San Benito's adopted Growth Management Program.

Phase 1 improvements, located within the Ridgemark Golf and Country Club in previously developed areas, would not affect agricultural resources. As a site has not been selected for potable water treatment and concentrate disposal as a part of Phase 2, the extent of possible impacts to agricultural resources from potable water improvements is unknown. It is likely, however, that evaporation ponds would be located on lands suitable for agricultural production. Potential sites may contain Grade 1 soils (as defined by the San Benito General Plan using the Storie Index). A number of policies in the San Benito County Plan (in both the Land Use and Open Space Elements) address the conservation of agricultural lands and call for the highest level of protection for sites with Grade I soils. Lined evaporation ponds would not conflict with adjacent agricultural operations or require a substantial buffer to avoid potential land use impacts.

As described in *Section 3.5, Hydrology and Water Quality*, both Phase 1 and Phase 2 projects shall prepare and implement applicable stormwater pollution prevention plans (SWPPP) and a stormwater management plan (SWMP) consistent with recommended design criteria, in accordance with the National Pollutant Discharge Elimination permitting requirements enforced by the Regional Board. Phase 1 and Phase 2 are consistent with surface water quality policies.

Implementation of Phase 1 improvements would not conflict with the preservation of habitat for listed and candidate wildlife species in the County. The project includes program mitigation measures to reduce impacts to biological resources as a part of the design and construction of future Phase 2 improvements.

The project includes completion of geotechnical studies and the incorporation of measures to reduce geologic and seismic hazards to an acceptable level of risk. Critical facilities, such as the potable water treatment facilities and domestic water lines, will be designed and located in a manner that maximizes their ability to remain functional after a major earthquake. This is consistent with policies in the County's General Plan.

The project includes mitigation measures to minimize adverse effects on cultural resources, including archeological/historic sites. Project components, such as pipelines, groundwater water treatment facilities, and reconstructed wastewater treatment facilities and percolation ponds, would developed

in a manner consistent with the historic and archaeological resources policies in the General Plan.

In summary, the project is consistent with most of the goals, objectives and policies in the Conservation and Open Space Element of the County of San Benito General Plan. Construction of evaporation ponds on Prime Farmland under Phase 2 could be inconsistent with the goals and policies of the General Plan regarding the preservation of agricultural resources.

2.5.4 Noise Element Policies

The Noise Element seeks to protect community residents from noise that would jeopardize their health or welfare.

Policy 17: Construction-Related Noise Policy

It will be the County's continuing policy to control the operation of construction equipment at specific sound intensities and frequencies during specified hours.

Policy 18: High Noise Emission Policy

The County will encourage the use of barriers or enclosures for equipment having high noise emission.

Consistency: During the construction, both the Phase 1 and Phase 2 improvement projects will adhere to mitigation measures, including limits on construction hours. This would be consistent with the construction noise policy.

Pumps, generators and other noise generating equipment will be acoustically shielded during operation. This would be consistent with the County of San Benito high noise emission policy.

2.5.5 Seismic and Safety Element Policies

The basic purpose of the Seismic Safety Element is to provide a policy basis for future steps which the County can take to prevent the loss of life, to reduce injuries and property damage and to minimize economic and social dislocations which could result from a major earthquake.

Policy 2: Except for utility lines and transportation links, critical facilities and occupancies should not be located in High Hazard Areas.

Consistency: The RM I area is crossed by strands of the Calaveras Fault and both wastewater facilities at RM I and RM II are included within the State of California's earthquake fault zones. A Geotechnical Engineering Investigation Report has been prepared for Phase 1 improvements. The effect of ground shaking on the proposed structures and pipelines will be mitigated by design and construction measures specified in the geotechnical report prepared for the RM I site (Appendix B). The location of Phase 2 improvements is not known at this time. Program mitigation measures to reduce geologic and seismic hazards to an acceptable level of risk also are included as a part of Phase 2. These measures include preparation of design-level geotechnical study and/or soil foundation report to develop specific design criteria for new projects that include the installation of structures, foundations, pipelines, or levees. Through these measures, the project is consistent with this policy.

2.5.6 San Benito County Growth Management System, San Benito County Code (SBCC) Chapter 30

In April 2002, San Benito County adopted a "Growth Management System", also known as Ordinance No. 751, to manage residential development projects in the unincorporated areas of San Benito County. The purpose of the system is to maintain growth at a level that county services can keep up with and to protect agricultural resources.

As amended, the Growth Management System restricts population increases associated with new residential development in unincorporated areas of the County to one percent per year. Proposed residential projects are ranked based on water-related categories, including water supply, wastewater disposal, landscaping, and flood hazard.

Consistency: The proposed project includes an increase in wastewater treatment capacity of the SSCWD. Future wastewater capacity in the *Basis of Design Report* (2008) for the SSCWD is estimated based upon development and population increases anticipated to be allowed under the County's Growth Management System in the San Benito General Plan. Estimates of potable water demand for Phase 2 improvements were similarly estimated. New development that would be served by the proposed wastewater capacity increase would be located within the service area of the District and the Hollister Service Area, as defined in the *Hollister Urban Area Water and Wastewater Master Plan*, currently being prepared. The anticipated population growth of 1,929 residents (approximately 650 residences) over the next 15-17 years would represent approximately 60 to 65 percent of allowed growth in the unincorporated areas of the County.[19] The projected population increase and demand for wastewater provided for under the proposed project is below the allowed Countywide one percent growth per year and therefore is consistent with the San Benito County Growth Management System.

[19] Assuming a population of 18,000 persons in unincorporated San Benito County, allowed growth would be 180 residents per year.

SECTION 3.0 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

In accordance with Section 15143 of the CEQA Guidelines, the discussion in this EIR is focused on the significant effects on the environment resulting from the proposed project. This EIR is identified as both a "program-level and "project-specific" EIR. The proposed project includes various improvements and approvals that will occur over a period of time, and addresses impacts in varying degrees of specificity.

The mitigation measures that are appropriate to the types of approvals being considered also differ in terms of their specificity and degree of entitlement and enforceability. While CEQA requires that mitigation measures should be "fully enforceable," it also acknowledges that impacts from adoption of a plan or policy can best be mitigated by measures incorporated into the plan or policy [CEQA Guidelines Section 15126.4(a)(2)].

3.1 LAND USE

3.1.1 Existing Setting

3.1.1.1 *Existing Land Use*

The project area is located in unincorporated northern San Benito County, southeast of the City of Hollister. The existing RM I and RM II sites are public facilities that provide wastewater treatment. Land uses adjacent to these activities include single-family residential land uses along private streets, which are also bordered in some areas by a golf course.

General Plan Designations and Service Areas

The proposed Phase 1 project site is within unincorporated San Benito County, and is designated *R/UR: Rural/Urban* on the San Benito County General Plan land use map. RM I and RM II are both located on the edge of low-density residential areas, and RM II borders the Ridgemark golf course to the north. RM I is located on a hillside, and is bordered on the south, east, and west by ruderal grassland down to Southside Road. Residential uses are located to the north on the hilltop above RM I (refer to Figure 3, *Aerial Photograph*).

The Ridgemark area is within the City of Hollister's Planning Area, but is outside of the City's Sphere of Influence (SOI). The Hollister Planning Area "encompasses incorporated and unincorporated territory bearing a relation to the city's planning. A city's planning area generally encompasses the City Limits, and potentially land for annexation with the SOI."[20] The site is within Sunnyslope County Water District's water and wastewater service areas (Figures 4 and 5).

3.1.1.2 *Nearby Land Uses*

The area outside of the Ridgemark area to the south and northeast is largely agricultural. Residential development within the City of Hollister is located to the north and northwest. State Route 25, a two-lane highway borders the project area to the north and northeast. The San Benito River is located west of the project site.

[20] City of Hollister, *General Plan Update,* 2005.

General Plan Designations

Adjacent General Plan land use designations near the Ridgemark area include *AP: Agricultural Productive* to the south and east, *RR: Rural Residential* and *R: Rural* in the unincorporated areas to the north, and *URB: Urban* in the City of Hollister (Figure 9).[21]

3.1.2 Land Use Impacts

3.1.2.1 *Thresholds of Significance*

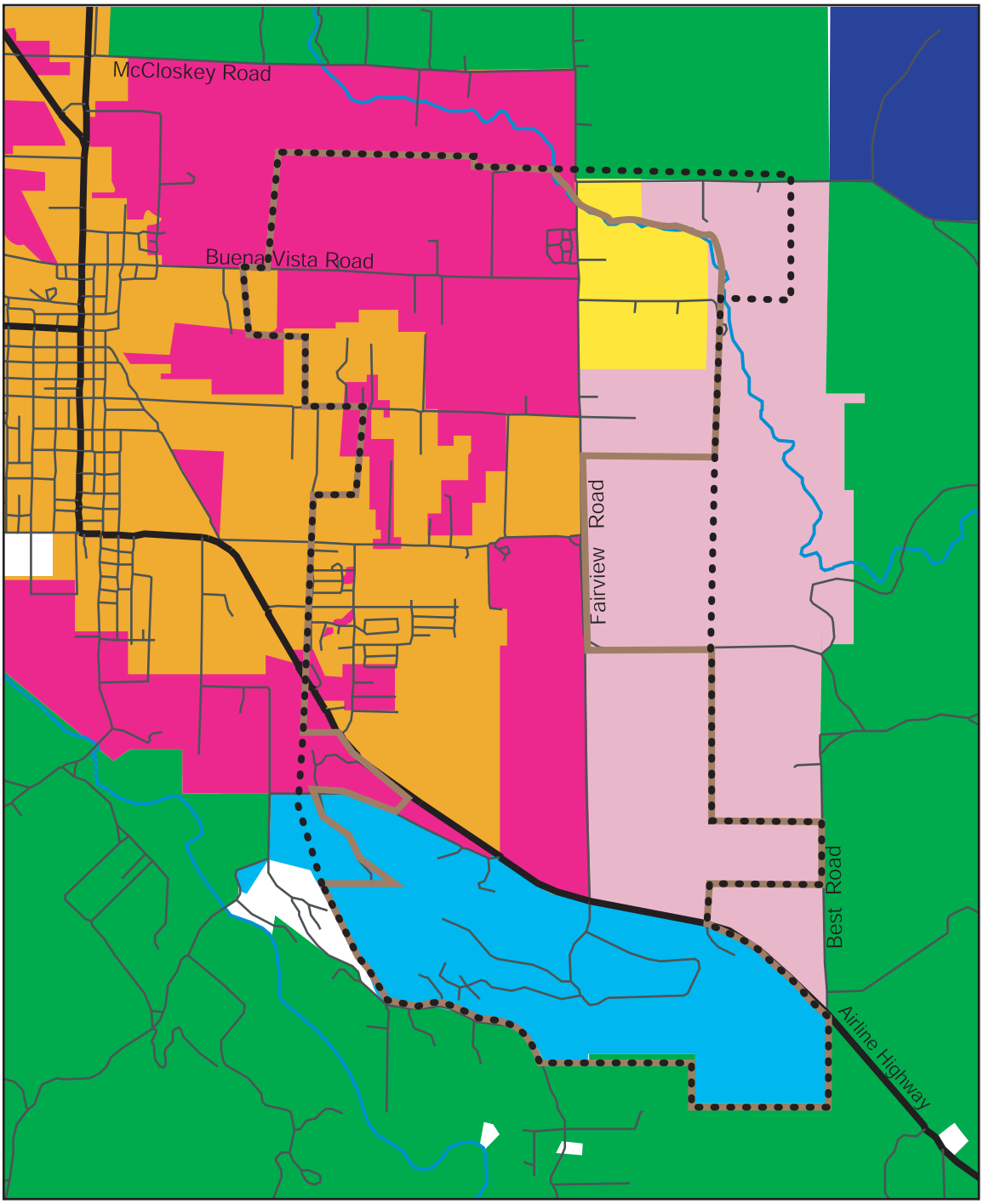
For the purposes of this EIR, a land use impact is considered significant if the project would do any of the following:

- Physically divide an established community.
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- Conflict with any applicable habitat conservation plan (HCP) or natural community conservation plan (NCCP).
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping & Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

3.1.2.2 *Land Use Compatibility Conflicts*

Land use compatibility conflicts can arise from two basic causes: 1) a new development or land use may cause impacts to persons or the physical environment in the vicinity of the project site or elsewhere; or 2) conditions on or near the project site may have impacts on the persons or development introduced onto the site by the new project. Both of these circumstances are aspects of land use compatibility. Incompatibility may arise from placing a particular development or land use at an inappropriate location, or from some aspect of the project's design or scope. An example of incompatibility would be the introduction of excessive noise or vibration adjacent to a residence or school. Depending on the nature of the impact and its severity, land use compatibility conflicts can range from minor irritations and nuisance to potentially significant effects on human health and safety. The discussion below distinguishes between impacts from the proposed project upon persons and the physical environment (from the project) and the impacts from the project's surroundings upon the proposed project itself (to the project).

[21] County of San Benito, *General Plan Land Use Element*, Adopted 1992, as amended.



Agricultural Rangeland
Agricultural Productive
Rural
Urban (City of Hollister)
SSCWD Water Service Area
SSCWD Water Service Sphere of Influence
Rural / Urban (Residential and Commercial)
Rural Transitional
Rural Residential
Public / Quasi-Public

N

1" = ± 3,200'

Source: County of San Benito GIS Website, Dec. 2008

LAND USE DESIGNATIONS (SAN BENITO COUNTY GENERAL PLAN) FIGURE 9

3.1.2.3 *Land Use Impacts from the Phase 1 Improvements*

Land Use Conflicts

The proposed Phase 1 improvements would be constructed and operated within the existing RM I and RM II facilities and generally within developed areas of the Ridgemark Golf and Country Club. New above-ground structures would be limited to an operations building and equipment enclosures at RM I, RM II and the main lift station. The proposed wastewater treatment upgrade project would not substantially change the built character of the area.

New noise-generating equipment, including pumps and emergency back-up generators, would be installed at RM I, RM II, and the main lift station. Blowers would also be installed at RM I. As described in *Section 3.8, Noise,* this equipment would be acoustically shielded in order to reduce impacts to nearby residents on Everest Drive, Mark's Drive, Sonny's Way, and Diane Court. With the installation of appropriate acoustical shielding, noise levels from mechanical equipment at nearby residences would not substantially increase.

Proposed solids handling facilities at RM I include an aerated solids storage tank and solids drying beds. Under proper aeration and management, biosolids would be stabilized and would not result in odors greater than that of the existing facility. Given the proximity of residential uses on Everest Drive and Marks Drive, the generation of new objectionable odors could be a significant impact. As described in *Section 3.7, Air Quality,* odors would be minimized by the proposed operation, maintenance and management of the facility.

The physical appearance of the RM I and RM II facilities would change as modifications to the on-site ponds are made. At RM I, the proposed blower building would be up to 15 feet tall and the proposed operations building would be 26 feet tall. Proposed electrical and control system enclosures for the Main Lift Station and RM II transfer pump station would be up to eight feet tall. None of the structures would be visually prominent, or greater in mass or scale than residential development in the surrounding area.

No street trees are planned for removal. The project is not expected to substantially change the visual character or aesthetics of the area.

Impact LU-1: Implementation of the proposed Phase 1 improvements would not result in substantial land use conflicts. **[Less than Significant Impact]**

Construction Impacts

Short-term construction impacts including increased dust, noise, and traffic interruptions could affect adjacent Ridgemark residents and golf course users. These construction impacts are discussed in more detail in *Section 3.3, Hydrology and Water Quality, Section 3.6, Traffic and Transportation, Section 3.7, Air Quality, and Section 3.8, Noise* of this EIR. While construction traffic may be a temporary nuisance to residents, it would not constitute a significant land use compatibility impact. Construction air emissions and noise would be reduced to a less than significant level by the mitigation measures described in *Section 3.7, Air Quality* and *Section 3.8, Noise.*

Impact LU-2: Implementation of the proposed Phase 1 improvements would not result in substantial short-term land use conflicts. **[Less than Significant Impact]**

Impacts to Agricultural Resources

Prime Farmland: The Phase 1 project area is located within a developed residential area of San Benito County. According to the San Benito County *Important Farmlands 2006* map (California Department of Conservation, 2007), Phase 1 facilities and most of the Ridgemark area is designated as "Urban and Built-up Land." "Urban and Built-up Land" is occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control measures. Some small areas within the Ridgemark area are designated as "Other Land," which is defined as land not included in any other mapping category, including low density rural developments, and vacant and nonagricultural land surrounded on all sides by urban development (Figure 10).

Implementation of the Phase 1 wastewater project would not result in impacts to agricultural land or resources. No agricultural or grazing land would be converted to a developed state by the proposed project. Therefore, the Phase 1 improvements would not impact agricultural resources.

Impact LU-3: The proposed Phase 1 wastewater improvements would not impact agricultural land or uses, and would not conflict with General Plan policies designed to protect agricultural resources. **[No Impact]**

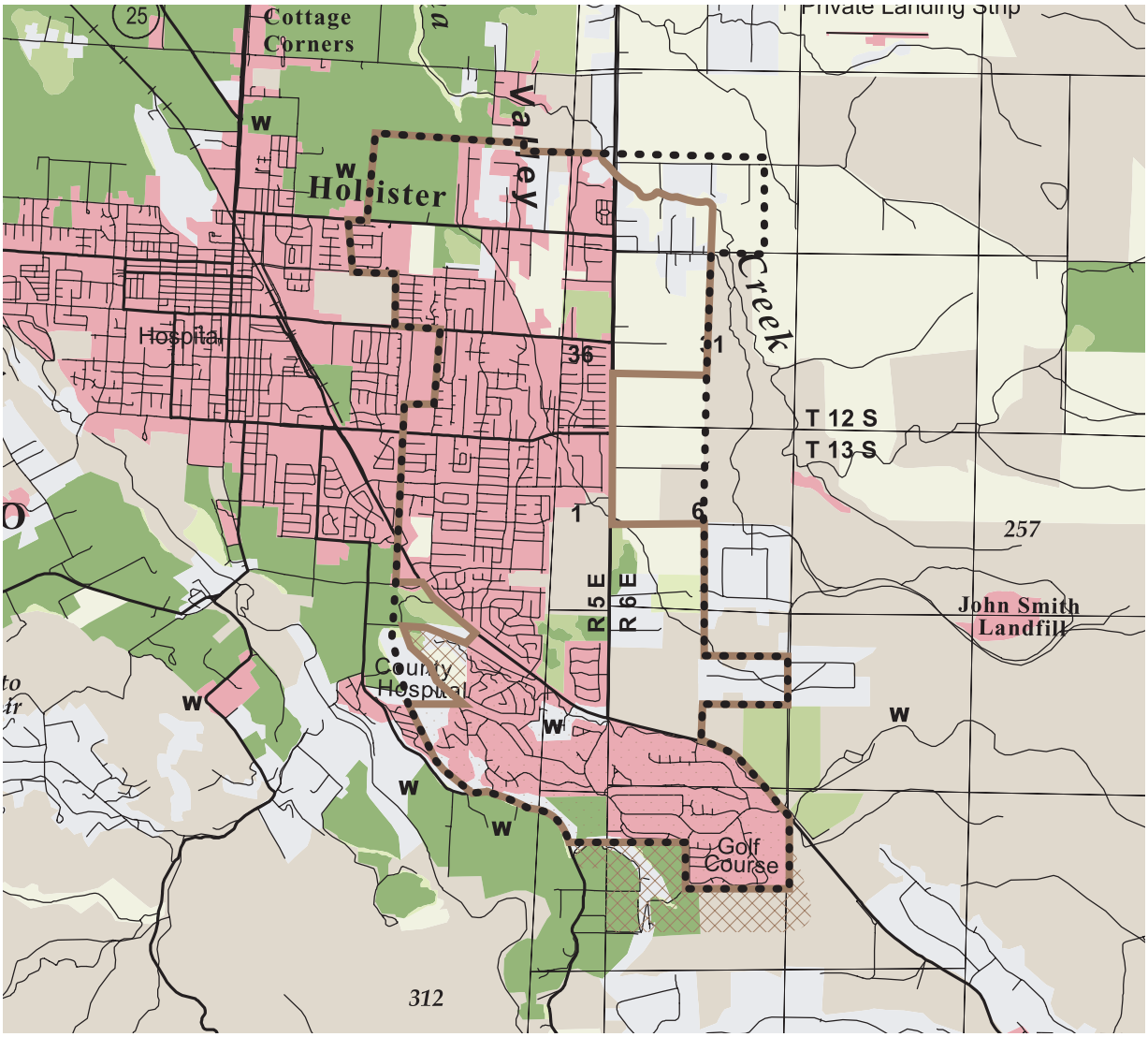
3.1.2.4 *Land Use Impacts from Phase 2 Improvements*

Land Use Conflicts

Future potable water supply improvements include demineralization and/or water softening of groundwater from wells. Phase 2 improvements could involve the construction of water treatment facilities, pumps, wells, pipelines, and evaporation ponds. These facilities are anticipated to be located in agricultural or rural areas set back from residences. Some noise could be generated by mechanical equipment, however, water treatment facilities are not expected to be a substantial new source of noise, odors, traffic, or litter near residences or other sensitive receptors.

As discussed in *Section 3.8, Noise* and *Section 3.5, Hazards and Hazardous Materials*, land use compatibility impacts associated with Phase 2 improvements would be reduced to a less than significant level by the implementation of adopted program-level mitigation measures from the *Groundwater Management Plan Update* and compliance with existing laws and regulations, as described in the applicable sections. The precise location and configuration of these facilities have not been determined at this time and subsequent environmental review will be required for Phase 2 improvements.

Impact LU-4: Water treatment facilities are not expected to be a substantial new source of noise, odors, traffic, or litter near residences or other sensitive receptors, if set back from existing residences. Therefore, implementation of proposed Phase 2 improvements would not result in substantial land use compatibility impacts. **[Less Than Significant Impact]**



Grazing Land
Other Land
Urban and Built-Up Land
Water Area
Prime Farmland
Farmland of Statewide Importance
Unique Farmland
Farmland of Local Importance
w Williamson Act Contracts

SSCWD Water Service Area
SSCWD Water Service Sphere of Influence
SSCWD Wastewater Service Near-Term
SSCWD Wastewater Service Long-Term

N

0 0.250.5 1 Miles

SAN BENITO COUNTY IMPORTANT FARMLAND MAP

FIGURE 10

Construction Impacts

Short-term construction impacts including increased dust, noise, and traffic interruptions could affect sensitive uses near the future potable water project. Future construction impacts are discussed in more detail in *Section 3.3, Hydrology and Water Quality, Section 3.6, Traffic and Transportation, Section 3.7, Air Quality, and Section 3.8, Noise* of this EIR. These construction impacts would be reduced to a less than significant level by the implementation of adopted program-level mitigation measures from the *Groundwater Management Plan Update,* as described in the applicable sections.

Impacts to Agricultural Resources

Unlike the wastewater treatment upgrades discussed above, future potable water projects could be located within an agricultural area and result in direct or indirect impacts to agricultural resources or operations.

Phase 2 improvements may involve construction on undeveloped agricultural land or rangeland. In particular, drying beds or evaporation ponds for the handling of concentrate produced from water softening or reverse osmosis could require 30 to 40 acres or more of open, flat land**.** In the vicinity of the SSCWD Ridgemark facilities, "Prime Farmland" is present to the west and south (Figure 10). Properties currently being evaluated by the SSCWD as potential sites for potable water treatment facilities are mapped as Prime Farmland by the California Department of Conservation and are located on Grade I soils. One of the properties, the Campisi property, is not currently being cultivated and is bordered by residential uses on two sides. In areas that have not been irrigated or cropped in many years, development of evaporation ponds may not directly result in the conversion of active farmland to non-agricultural uses. The sites under consideration are not under Williamson Act contracts.[22]

In an agricultural area, other development considerations include possible indirect impacts to agricultural operations. As potable water treatment would be within a closed system, these activities would not be sensitive to surrounding agricultural activities (such as cultivation or spraying of fields) and a buffer between the water treatment facility and agricultural activities would not be required. Continued access to adjacent agricultural fields by farm equipment will need to be considered at the time of site design. In addition, if a new potable water well is proposed at a site, impacts on the operation of nearby agricultural wells will need to be addressed as a part of subsequent environmental review.

General Plan Land Use Designations and Policies Related to Agricultural Resources: Many of the properties that would be considered for Phase 2 improvements are designated *Agricultural Productive* on the San Benito County General Plan land use map. This General Plan designation allows agricultural uses of all types, including grazing and ranching. Conditional uses include mineral extraction, low density recreational facilities, and institutional land uses. Development of potable water facilities on properties designated *Agricultural Productive,* therefore, may be inconsistent with the San Benito General Plan land use designations. As discussed in *Section 2.5.2,* implementation of Phase 2 improvements also may not be consistent with several General Plan policies related to the maintenance of agricultural areas, and protection of Grade I soils.

[22] The Williamson Act, or Land Conservation Act of 1965 authorizes counties to establish agricultural preserves by entering into contracts with landowners. Properties committed to agricultural or other compatible uses for a minimum of ten years receive property tax advantages. Withdrawal from a Williamson Act contract involves a ten-year period of tax adjustment to full market value before protected open space can be converted to urban uses.

The precise location and scope of Phase 2 improvements has not been determined; however, the location of drying beds and/or evaporation ponds in the vicinity of the SSCWD could result in a substantial direct impact to agricultural resources.

Impact LU-5: Implementation of the Phase 2 potable water project could result in significant impacts to agricultural resources, which would be inconsistent with County of San Benito policies designed to protect soil and agricultural resources. **[Significant Impact]**

3.1.3 Mitigation and Avoidance Measures

3.1.3.1 *Phase 2 Program-Level Mitigation Measures*

Impacts to Agricultural Resources

Program-level mitigation measures in the *Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin* outline measures for avoiding impacts to Prime Farmland and Farmland of Statewide Importance, including not siting facilities for evaporation of concentrate from groundwater treatment on these lands. The project proposes to use site design to minimize impacts to Prime Farmland and productive agricultural areas; however, given the location and topography of the Ridgemark area and costs associated with pipelines to and from the SSCWD service area, Phase 2 potable water improvement facilities may be proposed on properties considered Prime Farmland based on soil characteristics. Implementation of the following mitigation measures would reduce potential agricultural resources impacts associated with construction of the future potable water/salinity management project, but may not reduce impacts to a less than significant level.

MM LU-5.1: **Site Selection - Properties Under Williamson Act**
Properties committed to commercial agricultural uses under Williamson Act contract will not be considered as potential sites for potable water treatment evaporation ponds or large scale sludge drying ponds. An exception may be made for a property where a notice of non-renewal has been filed.

MM LU-5.2: **Site Assessment**
As part of environmental review and project formulation for Phase 2 potable water improvements, possible locations of facilities that are currently mapped as "Prime Farmland" or "Farmland of Statewide Importance" by the California Department of Conservation would be evaluated using the "Land Evaluation and Site Assessment" (LESA) Model to determine the loss of agricultural land that could occur due to these projects. The California LESA Model is a point-based approach for rating the relative importance for agricultural land resources based upon specific measurable features and is included in Appendix G of the CEQA Guidelines as a means to determine the value of land for agriculture. Half of the points in the LESA model are determined by a "Land Evaluation" which includes two factors (Land Capability Class and Storie Index ratings). Both of these ratings are based on the properties of the soils on a particular site. The second part of the evaluation is based on a "Site Assessment' that addresses the physical characteristics of a site (such as surrounding uses) and the availability of water for irrigation.

Preference will be given for available sites where development would not be considered a significant impact to farmland under the LESA model. Features, such as surrounding uses or unique parcel configuration, that reduce the viability of the site as productive farmland may also be taken into account.

MM LU-5.3: **Site/Project Design to Minimize Impacts to Prime Farmland and Farmland of Statewide Importance**

Site and project design will be used to minimize direct and indirect impacts to Prime Farmland and Farmland of Statewide Importance, to the extent feasible**.**

For Phase 2.a water softening facilities, measures such as sludge dewatering will be considered to minimize sludge volume and drying areas.

MM LU-5.4: **Avoidance of Conflicts with Existing Agricultural Operations**

Potential land use conflicts with agricultural operations from new project elements, such as modifying access to fields for farm equipment or reducing necessary land use buffers, will be avoided.

Specific impacts to farmland from Phase 2 potable water improvements are not known at this time, although there is a potential that these improvements could impact Prime Farmland south of Airline Highway. As described in *Section 6.0, Alternatives*, measures that could avoid or reduce impacts to agricultural land include alternative locations or an alternative design for sludge or concentrate handling and disposal. The conformance of the various alternatives with project objectives is discussed in detail in *Section 6.0., Alternatives.*

The CEQA Guidelines [Section 15126.2(b)] describes significant environmental effects which cannot be avoided as impacts that cannot be alleviated without imposing an alternative design. Possible impacts to agricultural resources associated with the construction of Phase 2 improvements, therefore, would be significant and unavoidable at this program level of review.

Measures to be Considered at the Time of Future Development of Phase 2 Improvements

Agricultural Land Conservation Easements

The protection of other existing farmland, such as through the use of agricultural easements or outright purchase, would not be considered mitigation under CEQA because the net result of such actions would still be a net loss of farmland acreage. However, such actions do benefit agriculture by preventing the conversion of otherwise vulnerable farmland to non-agricultural uses. If a project that results in the loss of farmland contributes to the protection of other farmland where the threat or likelihood of conversion to non-agricultural use is imminent, that fact can be taken into account when a Lead Agency adopts a statement of overriding considerations.

The SSCWD could: (1) acquire land outright, record an agricultural easement that limits uses of the land to agricultural purposes, and then could either sell or lease the property for farming by others; or (2) negotiate with one or more property owners to allow recordation of an agricultural easement. The property that is the subject of this type of easement might or might not actually be in active cultivation at the time of easement recordation, but would need to meet the following requirements:

- Be suitable for agricultural uses, including soil types that would meet the criteria to quality as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland in the Farmland Mapping and Monitoring Program maintained by the California Department of Conservation, and be of a size that could viably support agricultural uses. If the property is in multiple parcels, the parcels should either be of sufficient size to meet the criteria of agricultural viability, or the parcels should be merged.
- The property must be at a location in San Benito County and/or Central California that would qualify it as threatened by the possibility of urban or suburban development. This could include farmland located: (1) immediately adjacent to an urban boundary or urban service area; and/or (2) in the path of, and reasonably proximate to, a clear pattern of recent urbanization or suburban development.
- The easement may be offered to the County of San Benito, other appropriate agencies, or a farmland trust and must limit the uses of the land to agriculture in perpetuity.

As an alternative to providing individual agricultural easements, the District may also consider participation in an appropriate agricultural mitigation program established for the purpose of mitigating or avoiding loss of agricultural land.

3.1.4 Conclusion

Impact LU-1: Implementation of the proposed Phase 1 improvements would not result in substantial land use conflicts. **[Less than Significant Impact]**

Impact LU-2: Implementation of the proposed Phase 1 improvements would not result in substantial short-term land use conflicts. **[Less than Significant Impact]**

Impact LU-3: The proposed Phase 1 wastewater improvements would not impact agricultural land or uses, and would not conflict with General Plan policies designed to protect agricultural resources. **[No Impact]**

Impact LU-4: Water treatment facilities are not expected to be a substantial new source of noise, odors, traffic, or litter near residences or other sensitive receptors, if set back from existing residences. Therefore, implementation of proposed Phase 2 improvements would not result in substantial land use compatibility impacts. **[Less Than Significant Impact]**

Impact LU-5: Implementation of the Phase 2 potable water project could result in significant impacts to agricultural resources, which would be inconsistent with County of San Benito policies designed to protect soil and agricultural resources. Even with implementation of program mitigation measures included in the project, implementation of Phase 2 improvements could result in the loss of Prime Farmland. **[Significant Unavoidable Impact]**

3.2 GEOLOGY AND SOILS

The discussion in this section is based in part on the *Geotechnical Engineering Investigation Report* by DCM Engineering, which was completed on July 11, 2008, and is attached as Appendix B.

3.2.1 Existing Setting

3.2.1.1 *Regional Geology*

The project site is located within the Coast Ranges geomorphic province, which extends from southern California to Oregon. The structural geology of the Coast Ranges is dominated by stress concentrated along faults within the San Andreas Fault system. The site is located in the southeastern part of the Hollister Valley, a northwest-southeast trending valley between the Diablo Range to the east and the Gabilan Range to the west.

During the Pliocene and Pleistocene epochs, extensive flood plain sediments up to several hundred feet thick were deposited in the San Benito River Valley. These sediments are known as San Benito Gravels, and are fairly well consolidated. These deposits have been mined from sand-and-gravel pits in the area. Subsidence caused by Pleistocene tectonic activity resulted in more recent deposition of sand, silt, and clay over the San Benito Gravels. Episodic lowering of sea-level and tectonic uplift during the Holocene resulted in down-cutting by the San Benito River, numerous levels of alluvial terrace/fan formation, and mass wasting of upland areas by landslides and erosion.

3.2.1.2 *Site Geology and Soils*

Geology

The Ridgemark wastewater treatment facilities are located in the southeast part of Hollister Valley, a northwest-southeast trending valley between the Diablo Range to the east and the Gabilan Range to the west. Historic photographs and topographic maps of the area indicate that the ponds of the wastewater treatment system were constructed sometime between 1971 and 1987, in areas previously mapped as natural undeveloped land.

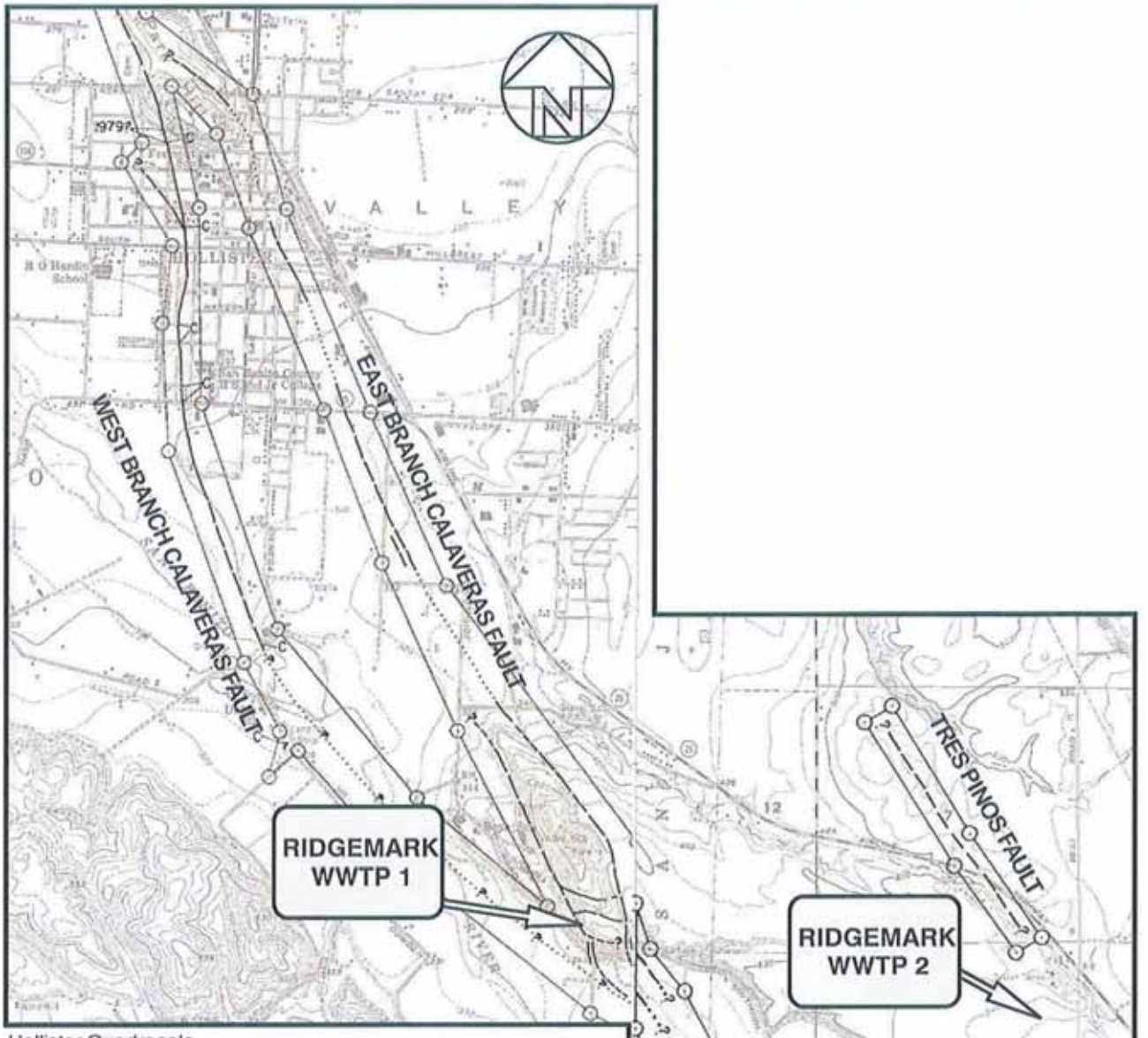
At approximately elevation 540 feet above mean sea level, the natural ground surface at Ridgemark I (RM I) is located along the axis of a relatively narrow northwest-southeast trending elongate ridge, about 200 feet higher in elevation and immediately northeast of the San Benito River.

RM II is also located at approximately 540 feet above MSL, about 100 feet higher in elevation than the entrenched San Benito River floodplain and several thousand feet east of the San Benito River. RM II is located on relatively flat terrain near a former, shallow, trapped drainage basin.

Soils and Gravels

Near surface soils in the Ridgemark area include a wide variety of clays, silts, sands, and gravel with cobbles with variable physical properties and engineering characteristics.

RM I is underlain by a faulted and westward 25-degree down-dipping sequence of Plio-Pleistocene continental deposits that include the San Benito Gravels. RM II is underlain by relatively flat-lying Pleistocene age older alluvial deposits.



EXPLANATION

POTENTIALLY ACTIVE FAULTS

1906 C

?

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed: query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

EARTHQUAKE FAULT ZONE BOUNDARIES

These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

SOURCE: State of California, Davis (1982 and 1986)

FAULT MAP FIGURE 11

Seven reference test borings were drilled in March 1985 for the Ridgemark Estates South development in and around RM II. These borings were drilled to depths of 20 to 60 feet and no groundwater was reported. Soils encountered included lean clay in the upper five feet below ground surface (bgs), with interlayered silts, sands, and gravel to 30 feet bgs, followed by lean clay and lesser gravel to 60 feet bgs.

Five test borings were drilled at the two Ridgemark wastewater treatment sites in May 2008, with four borings at the RM I facility, and one boring at the RM II site. The wells were drilled to depths of 24 to 39 feet bgs, and no free groundwater was encountered. Soils encountered at RM I included clayey sands with gravel, sands with gravel, and lean clays. Soils encountered at RM II included sandy lean clay, sand with clay and gravel, and lean clays. The soils at both site included both native and imported fill, with some imported fill at both sites to depths of at least 14 feet.

Mineral Resources

In San Benito County significant aggregate resources in the northern portion of the County have been classified and mapped through the authority of the Surface Mining and Reclamation Act (SMARA). Among the principal economic minerals within the County are the sand and gravel deposits of the San Benito River and the San Andreas Fault. Most of the sand and gravel resources which are significant are concentrated along Tres Pinos Creek and the portions of the San Benito River north of the tributary of Tres Pinos Creek.

3.2.1.3 *Seismicity and Faults*

The RM I area is crossed by strands of the Calaveras Fault, and the RM II area is located south of the southern mapped limit of the Tres Pinos Fault (Figure 11). Research by the California Geological Survey has concluded that strands of the Calaveras Fault crossing the RM I area have caused surface rupture within Holocene time (i.e., within the last 11,000 years) and have a relatively high potential for future surface rupture. Therefore, both wastewater facilities are included within the State of California's earthquake fault zones. Research by the California Geological Survey has concluded that there is insufficient evidence to suggest that active strands of the Tres Pinos Fault cross the RM II area.

The Calaveras Fault is a major branch of the San Andreas Fault. It splays from the San Andreas Fault south of Hollister, and has generated a number of moderate magnitude earthquakes (5.9 to 6.2) since 1897. Two nearly-parallel branches of the Calaveras Fault cross Hollister, but only the west branch is believed to have been historically active. The displacement across the Calaveras Fault is right-lateral strike-slip with the west side moving northward relative to the east side. North of the Ridgemark area, the Calaveras Fault has historically creeped fractions of an inch per year. A 1991 geologic report in the area inspected asphalt and concrete streets, sidewalks, and curbs along the trace of the east branch of the Calaveras Fault and found no pattern of displacements that would indicate creep activity in the Ridgemark area. The ground expression of the east branch is a subtle, discontinuous linear scarp. The topographic scarp tapers northwest to where it disappears near Southside Road. Differences in elevations of groundwater on the order of 20 to 25 feet (east side up) on opposite sides of the scarp have been interpreted to mark the subsurface location of the fault.

Very little is known about the Tres Pinos Fault, primarily because there is little surface expression for it in recent sediments. Exploratory work has revealed only equivocal evidence for recent activity in some isolated areas, and the Tres Pinos Fault has generated only low magnitude earthquakes during historic time.

The State of California Alquist-Priolo Earthquake Fault Zoning Act requires that specific fault hazard geologic reports be directed at the problem of potential surface faulting and surface rupture for all future projects that (1) are within active earthquake fault zones, and (2) include structures for human occupancy that support or shelter any use or occupancy at a rate of more than 2,000 person-hours per year. The RM I site is within an active earthquake fault zone, although the proposed structures on the site may not qualify for the occupancy standard.

Ground Shaking

Earthquakes on active faults in the area, including the Calaveras Fault, would be expected to cause ground shaking at both the RM I and II facilities. The Working Group on California Earthquake Probabilities estimated that there is a 11 percent probability of one or more greater than 6.7 magnitude earthquakes on the entire length of the Calaveras Fault, and an aggregate 62 percent probability of one or more greater than 6.7 magnitude earthquakes on any active fault in the greater San Francisco Bay Area between 2003 and 2032.

Insufficient information exists for the Tres Pinos Fault to accurately predict ground shaking or earthquake probabilities, but the fault has generated only low magnitude earthquakes during historic time.

3.2.1.4 *Liquefaction*

Soil liquefaction is a condition where saturated granular soils near the ground surface undergo a substantial loss of strength during seismic events. Loose, water-saturated soils are transformed from a solid to a liquid state during ground shaking. Soils most susceptible to liquefaction are loose, uniformly graded, saturated, fine-grained soils that lie close to the ground surface.

Based on the geology and groundwater conditions at the RM I and II sites described in sections above, the sediments at the RM I and II have very low susceptibility to liquefaction, even in a major nearby earthquake. Fills encountered at both sites also have a low susceptibility to liquefaction due to their overall high relative density, clay content, and clay layer stratification.[23]

3.2.1.5 *Landslides*

Landslides were mapped in the steep slopes north and south of RM I that form the elongate ridge on which the facility is located. These mapped landslides are indicative that the near-surface soils on steep slopes could be subject to instability, particularly if subjected to strong earthquake ground shaking (when saturated (e.g., during or immediately following rain).

DCM Engineering identified no mapped landslides in the vicinity of RM II, and landsliding is generally not a concern due to the relatively flat terrain near the facility.

[23] Moisture was detected in the soils below the percolation ponds, but was not considered to add a liquefaction hazard.

3.2.2 Geology and Soils Impacts

3.2.2.1 *Thresholds of Significance*

For the purposes of this project, a geologic impact is considered significant if the proposed project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.
  - Strong seismic ground shaking.
  - Seismic-related ground failure, including liquefaction, and/or landslides.
  - Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

3.2.2.2 *Geology and Soils Impacts to Phase 1 Improvements*

Seismicity and Fault Impacts

Based on existing research, the potential for fault offset is greatest at RM I. The RM II site is located south of the southern limit of the Tres Pinos Fault, and there is no evidence that suggests that active strands of the fault cross the project area. Ground shaking, however, may be considered the primary seismic hazard for both RM I and RM II. Both facilities are likely to be subject to at least one moderate to severe earthquake that could cause ground shaking.

The effect of ground shaking on the proposed structures and pipelines will be mitigated by design and construction measures in accordance with the provisions of the 2006 International Building Code (IBC) and the 2007 California Building Code (CBC), which have been adopted by the District. Design coefficients for the project are specified in the geotechnical report prepared for the site (Appendix B). With the implementation of these adopted measures, seismic impacts at the site would be less than significant.

Impact GEO-1: With the implementation of seismic design standards and codes adopted by the District and included in the project, seismic hazard impacts to new Phase 1 facilities would be less than significant. **[Less Than Significant Impact]**

Soil Impacts (Including Erosion)

The proposed project includes earthwork activities at RM I, including construction of a 25-foot concrete basin for the SBR in an existing pond, a sludge storage tank in an existing pond, an effluent pump station in a 15-foot below-grade concrete structure, yard piping from five to 20 feet deep, an operations building, and other equipment to be built on reinforced concrete foundations. These structures would be built in or above existing wastewater ponds. Portions of Pond 2 and Pond 3 will be filled in as part of the project. The ponds range up to 18 feet deep, so that grading and infilling of the ponds will require a substantial quantity of imported fill. Some of this fill is proposed to come

from a borrow area within Pond 6. A new pump station would be constructed at Ridgemark II, and would consist of a pre-fabricated structure approximately 10 feet below the subsurface.

The proposed recycled water pipelines trenches would be approximately two feet wide, and up to five feet deep, backfilled with sand in the lower four feet of the trench, with base rock in the upper one foot of fill (approximately), and new asphalt at the surface. The proposed pipeline crossing the hill below RM I would be installed with sand around the pipe in the lower two feet of the five-foot deep trench and native backfill in the upper three feet of trench.

Construction impacts to soils beyond the boundary of RM I may occur from the construction of temporary access roads and staging areas, as shown on Figure 8. An approximately 370 foot segment of the access road from RM I to a soil borrow area at Pond 6 would be constructed across a grassland/dryland hay area with an average slope of approximately 12 percent. The remainder of the construction access road to between RM I and Pond 6, approximately 900 feet in length, would utilize an existing unimproved road. Another temporary construction access, along an existing sanitary sewer easement, is approximately 600 feet in length, and may extend across the hillside from the main lift station to the existing paved RM I access road. These temporary access road and staging areas would be used for one to two construction seasons (April 15 to October 15) and subsequently would be disced, reseeded, and returned to pre-construction condition following use. The temporary access road and route would be recontoured and seeded at the end of each dry season. Grading of the temporary access road(s) and staging areas will be supervised by the project geotechnical engineer and civil engineer. Soil erosion in these temporarily disturbed areas would be limited by implementation of a stormwater pollution prevention (SWPPP) and a stormwater management plan (SWMP), as described in mitigation measures in *Section 3.3.3, Hydrology and Water Quality.*

The geotechnical report prepared for the project contains a number of specific recommendations for site preparation and grading, dewatering, sloping and shoring, design of foundations, creation of engineered fills, recompaction of existing fills, pipeline installation, and other geotechnical concerns. Implementation of the recommendations contained in this report, and compliance with existing building codes and District standards would reduce soils impacts to a less than significant level.

Impact GEO-2: With the implementation of design recommendations contained in the geotechnical report prepared for the project, as well as compliance with standards and codes adopted by the District and included in the project, adverse impacts from soil conditions or erosion from Phase 1 of the project would be less than significant. **[Less Than Significant Impact]**

Mineral Resource Impacts

The San Benito County General Plan, *Environmental Resources and Constraints Inventory* (1994), identifies significant mineral resources in the County. None of these resources are located within the Ridgemark area or would be affected by the project.

Impact GEO-3: Implementation of the proposed Phase 1 improvements would not have an effect on significant mineral resources in the County. **[Less Than Significant Impact]**

3.2.2.3 *Geology and Soils Impacts to Phase 2 Improvements*

Future potable water supply improvements include demineralization and/or water softening of groundwater from wells. Phase 2 improvements could involve the construction of water treatment facilities, pumps, wells, pipelines, and evaporation ponds. Phase 2 implementation would include completion of design level geotechnical studies.

Geology impacts from the implementation of these improvements could include seismic hazards from ground shaking and fault displacement, and geotechnical stability concerns. Mineral resources, such as aggregate resources near the San Benito River, could be affected by the project depending on location. Since the exact location and scope of these improvements is unknown, the project could have a significant impact on geology and soils. As the precise location and configuration of these facilities have not been determined at this time, subsequent environmental review will be required for Phase 2 improvements.

Impact GEO-4: Implementation of Phase 2 improvements could have significant geology and soils impacts, particularly from unstable soils and seismic hazards. **[Significant Impact]**

3.2.3 Mitigation Measures

3.2.3.1 ***Phase 1 Project-Level Avoidance Measures***

Although not identified as a significant impact, the project includes the following avoidance measures to reduce the potential for accelerated soil erosion during construction periods.

AM GEO-2.1: Measures to minimize erosion in construction staging and access areas in the vicinity of RM I include:

- Grading and use of new unpaved construction access roads shall occur only during the dry season (April 15-October 15) each year.
- Existing unpaved access roads may be used throughout the year by trucks with a weight of less than one ton, if the following conditions apply:
  - slopes on the existing unpaved access roads are less than 10 percent,
  - it is not raining,
  - there is no standing water or mud on the existing unpaved access road, and
  - the continued use of the existing unpaved road does not result in excessive erosion as determined by the project geotechnical or civil engineer.
- Recontouring and reseeding unpaved, temporary construction access routes prior to October 15 of each year, and
- Installation of stormwater and erosion control measures, such as straw rolls or water bars, on steep slopes under supervision of the project geotechnical or civil engineer.

3.2.3.2 *Phase 2 Program-Level Mitigation Measures*

The proposed project includes the following measures from the *San Benito County Groundwater Management Plan Update* to reduce impacts from Phase 2 potable water/salinity management improvements. Implementation of these measures would reduce **Impact GEO-4**, *Geology and Soil Impacts to Phase 2 Improvements* to a less than significant level.

MM GEO-4.1: **Design-Level Geotechnical Study and/or Soil Foundation Report**
A design-level geotechnical study and/or soil foundation report will be completed to develop specific design criteria for new projects that include the installation of structures, foundations, pipelines, or levees. Geotechnical studies will include site-specific evaluations of soil conditions, fault creep, ground shaking and the potential for liquefaction and lateral spreading. Mitigation measures to reduce geologic and seismic hazards to an acceptable level of risk will be included in new projects.

MM GEO-4.2: **Post-Seismic Event Functionality for Critical Facilities**
Critical facilities, such as water and wastewater treatment facilities and domestic water lines, will be designed and located in a manner that maximizes their ability to remain functional after a major earthquake.

MM GEO-4.3: **Erosion Control Measures**
Measures to minimize erosion, including grading during the dry season and reseeding of disturbed areas, will be incorporated in new water management or water treatment projects that require grading and/or tree removal.[24]

3.2.4 Conclusion

Impact GEO-1: With the implementation of seismic design standards and codes adopted by the District and included in the project, seismic hazard impacts to new Phase 1 facilities would be less than significant. **[Less Than Significant Impact]**

Impact GEO-2: With the implementation of design recommendations contained in the geotechnical report prepared for the project, as well as compliance with standards and building codes adopted by the District and included in the project, soils impacts from Phase 1 of the project would be less than significant. **[Less Than Significant Impact]**

Impact GEO-3: Implementation of the proposed Phase 1 improvements would not have an effect on significant mineral resources in the County. **[Less Than Significant Impact]**

Impact GEO-4: Implementation of the future potable water project could have significant geology and soils impacts, particularly from unstable soils and seismic hazards. Compliance with the program-level mitigation measures from the *San Benito County Ground Water Management Plan Update* would reduce these impacts to a less than significant level. **[Less Than Significant Impact with Mitigation Measures Included in the Project]**

[24] Erosion and sedimentation control practices are listed in the Program-Level Mitigation Measures in *Section 3.3, Hydrology and Water Quality* of this EIR.

3.3 HYDROLOGY AND WATER QUALITY

The following discussion is based in part on a hydrology memorandum by *Gus Yates, Consulting Hydrologist* in July 2008 ("Sunnyslope County Water District: Simulation of Impacts of Wastewater Alternatives on Groundwater Flow and Salinity"). This report is attached to this EIR as Appendix C.

3.3.1 Introduction and Regulatory Framework

3.3.1.1 *Overview--Clean Water Act and Porter-Cologne Water Quality Control Act*

The major federal legislation governing water quality is the Clean Water Act, as amended by the Water Quality Act of 1987. The U.S. Environmental Projection Agency (EPA) is the federal agency for water quality management nationwide. In California, the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act are the primary laws related to water quality. Regulations set forth by the U.S. Environmental Protection Agency (EPA) and the state Water Resources Control Board have been developed to fulfill the requirements of this legislation.

The Clean Water Act establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Under the Clean Water Act, EPA has implemented pollution control programs such as setting wastewater standards and water quality standards for all contaminants in surface waters.

Three key regulatory programs are outlined in the Clean Water Act. Sections 303 and 304 of the Act call for the establishment of water quality standards, criteria, and guidelines, including for wastewater effluent.[25] Under Section 303(d) States are required to identify impaired surface water bodies and develop total maximum daily loads (TMDLs) for contaminants of concern. As part of implementing Section 303, federal regulations (40 CFR 131.6) also require that each state develop and implement an "Antidegradation Policy" to protect develop, adopt, and implement measures to protect surface water quality and support existing uses. Activities that may result in discharges to Waters of the United States and that require a federal permit are regulated under Section 401 of the Act. Water Quality Certification by the state is required for activities such as placement of fill in wetlands or bodies of water.

The EPA's regulations, as called for under Section 402 of the Clean Water Act, also include the National Pollutant Discharge Elimination System (NPDES) permit program, which controls sources that discharge pollutants into waters of the United States (e.g., streams, lakes, bays, etc.). These regulations are implemented at the regional level by water quality control boards, which for the project area is the Central Coast Regional Water Quality Control Board (RWQCB).[26] The jurisdictional area of the Central Coast RWQCB includes San Benito, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties, as well as the southern one-third of Santa Clara County, and small portions of San Mateo, Kern, and Ventura Counties.

[25] Under federal regulations (40 CFR 131.2), a water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States adopt water quality standards to protect public health or welfare, enhance the quality of water and serve the purposes of the CleanWater Act (the Act).

[26] Historically, efforts to prevent water pollution have focused on "point" sources, meaning the source of the discharge was from a single location (e.g., a wastewater treatment plant, power plant, factory, etc.). Recent efforts also are focusing on pollution caused by "non-point" sources, meaning the discharge comes from multiple locations. The best example of this latter category is urban runoff, the source of which is a myriad of surfaces (e.g., roadways, rooftops, parking lots, etc.) that are found in a typical city or developed area.

The State of California's Porter-Cologne Water Quality Control Act provides the basis for water quality regulation within California and the Act assigns primary responsibility for the protection and enhancement of water quality to the State Water Resources Control Board (SWRCB) and the nine regional water quality control boards. The SWRCB provides state-level coordination of the water quality control program by establishing state-wide policies and plans for the implementation of state and federal laws and regulations. Each Regional Water Quality Control Board (RWQCB) adopts and implements a water quality control plan ("Basin Plan") that recognizes the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The RWQCB implements the Basin Plan by issuing and enforcing waste discharge requirements to control water quality and protect beneficial uses.

Basin Plan

The Basin Plan is a master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the Central Coast region.[27] The Regional Board first adopted a complete water quality control plan in 1975 and the last major revision was adopted in 1994. The Basin Plan provides a program of actions designed to preserve and enhance water quality and to protect identified beneficial uses. The Plan addresses both surface waters and groundwater.

Surface Waters

The Basin Plan, as adopted by the Central Coast RWQCB, identifies beneficial uses for the surface waters in San Benito County. The project area drains to the San Benito River and the subsequently to the Pajaro River. The beneficial uses listed for these surface waters include:

- Municipal and Domestic Supply
- Agricultural Supply
- Industrial Service Supply
- Ground Water Recharge
- Water Contact Recreation
- Non-Contact Water Recreation
- Wildlife Habitat
- Cold Freshwater Habitat (Pajaro River only)
- Warm Freshwater Habitat
- Migration of Aquatic Organisms (Pajaro River only)
- Spawning, Reproduction, and/or Early Development
- Freshwater Replenishment
- Commercial and Sport Fishing

The Basin Plan also includes a range of water quality objectives to protect and maintain existing and future uses of surface water bodies in the region. These objectives are a component of the RWQCB's Antidegradation Policy, in compliance with federal requirements (40 CFR 131.6). A summary of the water quality objectives in the Basin Plan for the San Benito River and Pajaro River is presented in Table 3.3-1. These objectives, expressed as annual mean values, are based on preservation of water quality and serve as a baseline for evaluating surface water quality management.

[27] The 11,274 square mile Central Coastal Region encompasses all of Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties, as well as the southern one-third of Santa Clara County, and small portions of San Mateo, Kern, and Ventura Counties.

Table 3.3-1 Basin Plan Surface Water Quality Objectives (Annual Mean Values)					
River Segment	**TDS mg/L**	**Chloride mg/L**	**Sulfate mg/L**	**Boron mg/L**	**Sodium mg/L**
San Benito River	1,400	200	350	1.0	250
Pajaro River at Chittenden	1,000	250	250	1.0	200
Source: California Regional Water Quality Control Board, Central Coast Region. 1994. *Water Quality Control Plan*, Table 3-7.					

Other objectives in the Basin Plan for surface water address color, taste and odor, floating and suspended materials, oil and grease, biostimulatory substances that promote aquatic growth, and surfactants (e.g. components of detergents and other cleaners) in surface waters. All of these characteristics can have an effect on the beneficial uses of water in the Basin.

Groundwater

The existing and anticipated beneficial uses of groundwater in the vicinity of RM I and RM II include Municipal and Domestic Water Supply, Agricultural Water Supply, and Industrial Water Supply.[28] Objectives for groundwater quality in the Basin Plan include general objectives for all groundwater resources and specific objectives for municipal and domestic groundwater supplies, for agricultural supplies, and for specific sub-basins.

Objectives for Municipal and Domestic Groundwater Supplies include:

- **Bacteria**: The median concentration of coliform organisms over any seven-day period shall be less than 2.2/100 ml.

- **Organic Chemicals:** Ground waters shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.

- **Chemical Constituents:** Ground waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 4, Section 64435, Tables 2 and 3.

- **Radioactivity:** Ground waters shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 5, Section 64443, Table 4.

Objectives for Agricultural Groundwater Supply include:

- Ground waters shall not contain concentrations of chemical constituents in amounts that could adversely affect beneficial use for agricultural. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3 of the Basin Plan, including specific concentrations for constituents such as arsenic, boron, cadmium, chromium, copper, lead, mercury, nitrate, nitrite, selenium

[28] Source: Central Coast Regional Water Quality Control Board, WDR No. R3-2004-0065 for Sunnyslope County Water District, Ridgemark Estates Subdivision, Wastewater Treatment Plant, San Benito County.

and zinc.

- In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-4. No controllable water quality factor shall degrade the quality of any ground water resource or adversely affect long-term soil productivity. The salinity control aspects of ground water management will account for effects from all sources.

The specific groundwater quality objectives identified in the Basin Plan for the Hollister and Tres Pinos subareas of the Pajaro River sub-basin are listed in Table 3.3-2.

Table 3.3-2
Basin Plan Groundwater Quality Objectives*

Constituent	Hollister Subarea (mg/L)**	Tres Pinos Subarea (mg/L)
Total Dissolved Solids (TDS)	1,200	1,000
Chloride (Cl)	150	150
Sulfate (SO_4)	250	250
Boron (B)	1.0	1.0
Sodium (Na)	200	150
Nitrogen (N)	5	5

*Objectives shown are median values based on data averages; objectives are based on preservation of existing quality or water quality enhancement believed attainable following control of point sources.
**mg/L = milligrams per liter

The Basin Plan also includes the following principals for recycled (reclaimed) water use:

- Water quality management systems throughout the basin shall provide for eventual wastewater reclamation, but may discharge wastes to the aquatic environment (with appropriate discharge requirements) when wastewater reclamation is precluded by processing costs or lack of demand for reusable water.

- The number of waste sources and independent treatment facilities shall be minimized and the consolidated systems shall maximize their capacities for wastewater reclamation, assure efficient management of, and meet potential demand for reclaimed water.

3.3.1.2 *Waste Discharge Requirements*

The RWQCB regulates waste discharges to protect beneficial uses through the establishment of Waste Discharge Requirements (WDRs) to meet specific water quality objectives. A key State policy considered in WDRs is the state's "Anti-Degradation Policy".[29] This policy states that whenever the existing quality of water is higher than the objectives established in the Basin Plan, such existing quality shall be maintained unless any change would: 1) be consistent with maximum benefit to the people of the State; 2) not unreasonably affect present and anticipated beneficial uses of water; and 3) not result in water quality less than prescribed in water quality control plans or policies.

[29]The Anti-Degradation Policy, or the "Statement of Policy with Respect to Maintaining High Quality of Waters in California, was adopted by the SWRCB in 1968.

On December 3, 2004, the Central Coast Region (District 3) Regional Water Quality Control Board (RWQCB) issued Waste Discharge Order No. R3-2004-0065, requiring the SSCWD to address updated standards for ammonia, nitrates, total suspended solids (TSS), biochemical oxygen demand (BOD), sodium, chloride, and total dissolved solids (TDS) in wastewater effluent to comply with Title 22 standards. To fully comply with this order, wastewater treatment facility and water treatment upgrades to reduce these constituent levels must be in place by January 2010. The waste discharge standards for the Ridgemark facilities are listed in Table 3.3-3.

Table 3.3-3
RWQCB Discharge Requirements
(Order No. R3-2004-0065)

	Parameter	Waste Discharge Permit Requirement (mg/L)
1	**Nitrate as Nitrogen**	5
2	**Ammonia as Nitrogen**	5
3	**Biochemical Oxygen Demand (BOD)**	30
4	**Total Suspended Solids (TSS)**	30
5	**pH**	6.5-8.4
6	**Total Dissolved Solids (TDS)**	1,200
7	**Sodium**	200
8	**Chloride**	200

mg/L = milligrams per liter

3.3.1.3 *California Water Code and Title 22 Recycled Water Regulations*

Under the California Water Code, the SWRCB is responsible for formulating and adopting state policy for water recycling, while the California Department of Health Services [now the California Department of Public Health (DPH)] is responsible for establishing uniform statewide criteria to ensure that the use of recycled water would not be detrimental to public health. There are no federal standards governing wastewater recycling and reuse in the United States, although the U.S. EPA has sponsored the preparation of *Guidelines for Water Reuse*.[30] Many states, including California, have developed wastewater reclamation regulations with the objective of protecting public health and allowing for the safe use of recycled wastewater. The State established water quality criteria, treatment process requirements, and treatment reliability requirements for recycling operations, which are set forth in Title 22, Division 4, of the California Code of Regulations.[31] The RWQCB is responsible for reviewing proposed recycled water projects, and for establishing requirements through the WDR permit process. DPH is responsible for reviewing proposed recycling projects and for providing comments and/or recommendations to the RWQCB.

The Water Recycling Criteria address treatment requirements for various types of recycled water uses. The treatment requirements are based on the expected degree of human contact with recycled wastewater for each type of use. Treatment requirements are expressed as treatment process requirements (e.g., bio-oxidation, coagulation) as well as performance standards (e.g., disinfection standards and contaminant reduction). Title 22 recycled water criteria that apply to irrigation uses

[30] U.S. Environmental Protection Agency, *EPA Manual – Guidelines for Water Reuse*, September 1992.
[31] California Health Laws Related to Recycled Water ("Purple Book"), Title 22 Code of Regulations, Division 4. Environmental Health.

are summarized in Table 3.3-4.

Table 3.3-4
Summary of Title 22 Recycled Water Treatment and Use Requirements

Treatment Process	Allowable Uses
Undisinfected Secondary	Orchards and vineyards where the recycled water does not come into contact with the edible portion of the crop; non-food bearing trees; fodder/ fiber/pasture for animals not producing milk for human consumption; seed crop not for human consumption; nursery and sod farms, with restrictions.
Disinfected Secondary-23	As above, plus cemeteries; freeway landscaping; restricted access golf courses; nursery and sod farms (unrestricted), pasture for animals producing milk for human consumption; other non-edible vegetation with controlled access; landscape impoundment without decorative fountains.
Disinfected Secondary-2.2	As above, plus irrigation of food crops where no contact occurs between the edible portion and the recycled water; restricted recreational impoundments.
Disinfected Tertiary	As above, plus edible food crops; parks and playgrounds; school yards; residential landscaping; unrestricted access golf courses; nonrestricted recreational impoundments; industrial or commercial cooling.
Source: Title 22 Code of Regulations	

3.3.1.4 *Total Maximum Daily Load (TMDL)*

Under Section 303(d) of the federal Clean Water Act, California has identified water bodies that are polluted, and need further attention to support their beneficial uses. These water bodies are listed under the Clean Water Act Section 303(d) list, which requires states to identify water bodies that are "impaired" (i.e., not meeting one or more of the established water quality standards). Approximately 500 water bodies or segments have been listed in California.

Once a water body or segment is listed, the State is required to establish a Total Maximum Daily Load (TMDL) for the pollutant causing the conditions of impairment. The TMDL is the quantity of pollutant that can be safely assimilated by a water body without violating water quality standards. Listing of a water body as impaired does not necessarily suggest that the water body cannot support the beneficial uses; rather, the intent is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for future water quality degradation.

The RWQCB has identified the Pajaro River as an "impaired" water body for sedimentation/siltation, fecal coliform and boron. The San Benito River is listed as an impaired water body for fecal coliform.[32] The TMDL process is ongoing and TMDLs for two of these pollutants are projected to be adopted in 2011 (fecal coliform) and 2019 (boron).

[32] Central Coast Regional Water Quality Control Board, *Section 303(d) List of Water Quality Limited Segments Requiring TMDLs*, June 28, 2007.
[http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r3_06_303d_reqtmdls.pdf]

3.3.1.5 *Drinking Water Standards*

Suppliers of domestic drinking water are subject to federal regulations under the Safe Drinking Water Act (42 U.S.C. 300f et seq.) as well as California Department of Public Health regulations under the California Safe Drinking Water Plan Act (Health and Safety Code Sections 116270-116750). These regulations address primary drinking water standards, or maximum contaminant levels (MCL) for inorganic and organic chemicals and radioactivity. MCLs are based on health protection, technical feasibility, and economic factors. Secondary drinking water standards have also been established to address aesthetic factors, such as taste, smell and clarity.

The State of California requires public water systems to analyze their drinking water for contaminants on a regular basis. Sampling frequency depends on the contaminant, type of water source, and previous sampling results.

3.3.1.6 *NPDES Non-Point Source Program—General Construction Permit*

The State NPDES General Construction Permit requires development and implementation of Storm Water Pollution Prevention Plan (SWPPP) and uses stormwater Best Management Practices (BMPs) to control runoff, erosion, and sedimentation from development sites both during and after construction. The SWPPP has two major objectives: 1) the help identify the sources of sediments and other pollutants that affect the quality of storm water discharges; and 2) to describe and ensure the implementation of practices to reduce sediment and other pollutants in storm water discharges. Projects that disturb one acre or more are required to comply with NPDES General Construction Permit requirements.

3.3.1.7 *Groundwater Management Plan (Water Resources Association)*

The 2004 *Groundwater Management Plan Update for the San Benito County Part of the Gilroy-Hollister Groundwater Basin* (GWMP) is the result of a collaborative planning process by the Water Resources Association of San Benito County (WRA). The WRA is an association of the City of Hollister, City of San Juan Bautista, Sunnyslope County Water District, and San Benito County Water District. The member communities and districts of the WRA are responsible for the implementation of programs and elements described in the GWMP Update in the Northern San Benito County area. Implementation of the GWMP Update consists of voluntary, coordinated actions by the participating communities and districts of the WRA.

The GWMP includes goals and objectives for short-term and long-term management of water resources in Northern San Benito County. It is the principal plan for the management of groundwater in Hollister, San Juan Bautista, the San Benito County Water District and the Sunnyslope County Water District within the Gilroy-Hollister Groundwater Basin. The GWMP addresses surface and groundwater management as well as wastewater treatment discharges and use of recycled water supplies. The GWMP is intended to facilitate the provision of reliable, sustainable, good quality water for existing and future agricultural, municipal and industrial (M&I) uses in accordance with the adopted goals and objectives of the Plan. The overall goal of the GWMP Update is to maintain and enhance the agricultural and economic productivity of San Benito County in an environmentally responsible manner.

Components of the proposed project that are identified in the GWMP as programs, projects or activities include:

- M&I Wastewater Effluent Percolation (Phase 1 and Phase 2 Improvements)
- Recycling of Wastewater Effluent for Direct Reuse [Phase 1 (blended) and Phase 2 (direct) Improvements]
- Water Softener Ordinance (Phase 2)
- Salinity Education Program (Phase 2)
- Groundwater Treatment and Concentrate Disposal (Phase 2 Improvements)

The following is a summary of relevant objectives and criteria in the GWMP that apply to the proposed project. The GWMP also includes a range of Program-Level Mitigation Measures to be applied to specific projects such as the proposed wastewater treatment and recycled water improvements.

Water Quantity Objective 1: Maintain a reliable water supply for present and future users.

Water Quantity Criterion 1-1: Deliver 100% of agricultural and M&I supply in normal and dry years, and in the first critically dry year of a drought.

Water Quantity Criterion 1-2: Deliver at least 85% of M&I demands and 75% of agricultural demands in the second and subsequent critically dry years of a drought.

Water Quality Criterion 1-3: Deliver M&I water meeting primary and secondary water quality objectives, with emphasis on achieving the "DHS's Recommended Limit for Consumer Acceptance" of 500 mg/L for TDS and hardness of no greater than 120 mg/L as calcium carbonate (CaCO3). (It should be noted that there are no secondary standards for hardness; soft waters are typically 0-60 mg/L, 61 - 120 mg/L are moderately hard, and 121 - 180 mg/L are hard and 180 mg/L are very hard).

Water Quality Criterion 1-4: Deliver agricultural water meeting established quality parameters. In order to optimize crop yield based on the available water sources, salinity (as measured by TDS), sodium hazard (as measured by Sodium Adsorption Ratio, or SAR); and boron have been selected as key indicator parameters. The following water quality objectives for the three water quality parameters have been developed.

- Salinity: <700 mg/L TDS
- SAR: <6.5
- Boron: <0.5 mg/L
- TDS levels that range from 480 - 1920 mg/L are considered marginal for irrigation, per Regional Board Basin Plan.

3.3.1.8 *San Benito County Water District*

The San Benito County Water District (SBCWD) is a California Special District that was formed in 1953 by the San Benito County Water Conservation and Flood Control Act. The District encompasses around 47,000 acres of San Benito County and delivers water to approximately 32,000 acres. The SBCWD has jurisdiction over the management of groundwater and surface water resources in the County.

The District prepares an Annual Groundwater Report that describes the condition of water resources in northern San Benito County and includes recommendations for surface and groundwater management. The Annual Groundwater Report prepared by the District also identifies and addresses key issues for the groundwater basin, such as water quality, salinity management, available water supplies, and groundwater levels.

Responsibilities of the SBCWD include delivery of imported surface water from the U.S. Bureau of Reclamation Central Valley Project (CVP water), management of surface water sources, and groundwater and groundwater quality management. In order to obtain funds to support its various water management activities, the SBCWD has formed three zones of benefit. The Ridgemark area is within Zone 1 (the entire county) and Zone 6, which includes most of the Gilroy-Hollister Valley Groundwater Basin in San Benito County and provides the funding base for importation and distribution of CVP water and related groundwater management activities.[33]

3.3.1.9 *Hollister Urban Area Water and Wastewater Master Plan Memorandum of Understanding*

As previously described in *Section 2.0 Consistency with Relevant Plans and Policies*, a partnership was formed between the City of Hollister, San Benito County, and the San Benito County Water District to work together and provide a long term vision to guide water and wastewater improvements, consistent with the General Plans of San Benito County and the City of Hollister. The three entities executed a Memorandum of Understanding (MOU) and a Statement of Intent in 2005 to develop and maintain the *Hollister Urban Area Water and Wastewater Master Plan.* The Sunnyslope County Water District has become a party to the MOU. The MOU sets recycled water total dissolved solids (TDS) objectives of 500 mg/L, but not greater than 700 mg/L, by the year 2015. Other items considered in the MOU include discharge issues, drinking water TDS objectives, and impacts to the environment, economy, and local culture. Preparation of the *Hollister Urban Area Water and Wastewater Master Plan* is currently underway and the Plan has not been formally adopted.

The MOU includes principles and objectives for the Hollister Urban Area Water and Wastewater Master Plan, which includes the project area. Under Principle 2.1.1 and Objective 2.2.4, the MOU calls for all wastewater from the "Hollister Urban Area" to be treated at a central wastewater treatment plant in Hollister. This provision does not preclude satellite wastewater separation plants for the recovery of water for local recycling. Under the Plan, SSCWD may independently construct a wastewater treatment plant for local recycling.[34]

Relevant objectives from the HUAWWMP and MOU that apply to the proposed SSCWD Ridgemark Wastewater Treatment and Recycled Water Improvements Project are listed below.

Principle 2.1.2: The standards for the quality of wastewater to be discharged (percolated, reused or discharged to surface water) shall be developed and agreed to by the City of Hollister, San Benito County and the San Benito County Water District and shall include appropriate consideration of regional issues. These standards shall be the most stringent of local standards, state or federal regulations and shall include careful consideration of anticipated future

[33] Source: Todd Engineers. 2007. *San Benito County Water District Annual Groundwater Report for Water Year 2007* (December 2007). [http://www.sbcwd.com/Annual_GW_report_2007.pdf]
[34] Source: City of Hollister Domestic Wastewater System Improvements and San Benito County Water District Recycled Water Facility Project Final EIR (page 2-11**).**

regulation.

Principle 2.1.3: The selection of wastewater treatment processes and disposal methods shall include careful consideration of future wastewater disposal requirements and provision for maximum reuse of wastewater. The selection of wastewater disposal options and sites shall be agreed to by the City of Hollister, San Benito County and San Benito County Water District provided that disposal shall not:

c. Impact drinking water supplies or negatively impact adjacent land uses or property values unless fully mitigated to the satisfaction of the City of Hollister, San Benito County and San Benito County Water District, or

d. Be inconsistent with applicable General Plans or Policies including preservation of agricultural land, or

e. Be or result in conditions inconsistent with the quantity, quality, or groundwater levels objectives of groundwater management plans for the area of disposal.

Principle 2.1.4: Urban water supply including as appropriate blending of treated surface water and ground water, removal of hardness and other minerals from groundwater to provide urban water users with uniform water quality, shall minimize the need for water softeners, assure reliability of the urban water supply and support direct use of urban waste water. The urban water supply shall include provision(s) for drinking water service to areas in and adjacent to the Hollister Urban Area where Health and Safety issues exist.

Principle 2.1.5: Surface water and groundwater supplies shall be managed to sustain the area water supply and manage groundwater levels to avoid negative impacts on overlying land uses.

Principle 2.1.6: The standards for the quality of potable (drinking) water delivered to urban users shall be developed and agreed to by the City of Hollister, San Benito County and the San Benito County Water District and shall include appropriate consideration of regional issues while focusing on economic and health impacts. These standards shall to be the most stringent of local standards, state or federal regulations and shall include careful consideration of anticipated future regulation.

Principle 2.1.7: The impacts of water supply and treatment and wastewater treatment and disposal including reclamation on the culture, economy and environment of the City of Hollister and San Benito County shall be carefully evaluated and negative impacts minimized. The impacts considered shall include, but not be limited to, impacts on air quality, surface water and groundwater quality and quantity, rates and charges including connection/impact fees, property values, industry and business, preservation of agriculture and agricultural land, and aesthetics.

Principle 2.1.8: Water and wastewater management to protect and sustain the local surface and groundwater supplies of San Benito County.

Objective 2.2.2: Drinking water shall have a TDS concentration of not greater than 500 mg/l and a hardness of not greater than 120 mg/l (Calcium Carbonate).

Objective 2.2.3: Recycled wastewater, shall have a target TDS of 500 mg/l and shall not exceed 700 mg/l TDS. To meet this objective, the wastewater treatment plant(s) shall include provisions(s) for demineralization. This objective shall be met first by rigorous source control including, but not limited to, the elimination of on-site regenerating water softeners and second by demineralization. Blending recycled water with San Felipe water is ONLY an interim measure for achieving recycled wastewater quality objectives. The recycled wastewater objective shall be met by the two measures identified above and the objectives of Section 2.2.2 as soon as practical and not later than by 2015.

3.3.2 Existing Setting

3.3.2.1 *Climate*

The area has a moderate, Mediterranean-type climate, with cool, wet winters and dry, hot summers. The City of Hollister, northwest of the project area, receives an average of approximately 13 inches of rain per year, the majority of which falls between November and April.

3.3.2.2 *Surface Water Hydrology*

The project area is within the San Benito River watershed. The San Benito River is the largest tributary to the Pajaro River,[35] with a drainage area of approximately 661 square miles. The San Benito River drains the portion of the Pajaro River watershed that follows the San Andreas Fault Zone for 57 miles to the southeast of Hollister. The San Benito River flows between the Gabilan Range on the west and the Diablo Range on the east and southeast. The largest tributary to the San Benito River is Tres Pinos Creek, with a drainage area of approximately 206 square miles.[36]

The San Benito River joins the Pajaro River four miles before the latter passes through the Chittenden (Pajaro) Gap, a relatively narrow canyon where the river crosses the San Andreas Fault. Downstream of the Chittenden Gap, the river emerges onto the alluvial plain of the Pajaro Valley. The Pajaro River discharges to Monterey Bay near Watsonville.

Within the project area, the RM I facility is the closest wastewater facility to the San Benito River. It is approximately one-third mile east and approximately 200 feet in elevation above the river. Several small drainages are located within the Ridgemark area, as seen on Figure 17, in *Section 3.4, Biological Resources* of this EIR. The Ridgemark golf course and the RM I and RM II wastewater treatment facilities also contain several ponds, as discussed below.

[35] The Pajaro River originates at San Felipe Lake (also known as Soap Lake) in northern San Benito County. The lake is fed by Pachecho Creek, Santa Anna Creek, and Arroyo Do Picachos. Other tributaries to the Pajaro River include Llagas and Uvas/Carnaderos Creeks.

[36] Source: SBCWD and WRA. 2004. *Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin Final Program Environmental Impact Report.* May 2004.

Imported Surface Water

The SBCWD imports surface water under contract to the U.S. Bureau of Reclamation via the San Felipe Unit of the federal Central Valley Project (CVP). The CVP is a federal water project that stores water in reservoirs in Northern California and delivers water to cities and farms throughout California. Water is delivered to San Luis Reservoir in Merced County by way of the Delta-Mendota Canal. Water is imported from San Luis Reservoir through the San Felipe Conduit and the Hollister Conduit. The Hollister Conduit terminates at San Justo Reservoir, southwest of the Ridgemark Golf and Country Club. San Justo Reservoir is used exclusively to store and manage imported water, which is distributed primarily for agricultural and other irrigation purposes through approximately 120 miles of pressurized pipeline laterals in northern San Benito County. Imported water is also released at controlled rates to several local creeks and the San Benito River to percolate and supplement groundwater recharge. Since 2003, a portion of the CVP water designated for M&I purposes has been treated at the Lessalt water treatment plant on Fairview Road. The Lessalt water treatment plant allows direct use of CVP water for municipal supply purposes by Sunnyslope County Water District (SSCWD) and the City of Hollister.[37]

Artificial Ponds

The project area includes the existing RM I and RM II wastewater facilities and the Ridgemark golf course and residential development. The facilities at RM I and II include treatment and percolation ponds separated by gravel driveways and access roads (refer to Photos 1-6). There are six constructed ponds at RM I; two treatment ponds with aerators and four percolation ponds. Generally only one or two of the four percolation ponds at RM I are active; the others are dry and kept in reserve. RM II has two treatment ponds and two percolation ponds.

The Ridgemark golf course includes several constructed ponds that serve as golf course features and/or that are used for irrigation water storage. One pond is a mitigation pond for California tiger salamander breeding habitat (refer to *Section 3.4, Biological Resources*). None of the ponds are located along natural creeks or waterways.

3.3.2.3 *Flooding and Drainage*

The Ridgemark area is located within Zone X on the applicable Federal Emergency Management Agency Flood Insurance Rate Map.[38] Zone X is defined as: "Areas outside the one percent annual chance floodplain, areas of one percent annual chance sheet flow flooding where average depths are less than one foot, areas of one percent annual chance stream flooding where the contributing drainage area is less than one square mile, or areas protected from the one percent annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone."[39]

Hernandez Dam is located southeast of the Ridgemark area on the San Benito River. The dam inundation area in the event of dam failure follows the river and generally is contained within the broad river channel. The Ridgemark development, including RM I and RM II facilities, are not located within the Hernandez Dam inundation area.[40]

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[37] Source: Todd Engineers. 2007. *San Benito County Water District Annual Groundwater Report for Water Year 2007* (December 2007). [http://www.sbcwd.com/Annual_GW_report_2007.pdf]

[38] Federal Emergency Management Agency, Flood Insurance Rate Map #06069C0090C, Unincorporated San Benito County, September 27, 1991.

[39] Federal Emergency Management Agency, *Definitions of FEMA Flood Zone Designations, Moderate to Low Risk Areas*, www.fema.gov, accessed October 11, 2008.

[40] Source: Monterey County, California Multi-Jurisdictional Hazard Mitigation Plan

Storm drains and inlets are installed throughout the Ridgemark residential area and stormwater drains to an unnamed creek (locally known as "Airline Creek") that flows northwest along the Airline Highway and Enterprise Road, but rarely connects through to the San Benito River. Stormwater from the approved area at RM I flows into the existing ponds. Some unimproved RM I areas drain overland over grassy hillsides. Stormwater from the improved area at RM II flows into the existing ponds.

3.3.2.4 *Groundwater Hydrology*

The main groundwater basin in San Benito County is the southern portion of the Gilroy-Hollister groundwater basin. The groundwater basin underlies the Hollister, San Juan, and Santa Clara Valleys, roughly between Tres Pinos in the south and Morgan Hill in the north. The sedimentary deposits that fill the main groundwater basin consist of discontinuous layers of sand, silt, clay, and gravel deposited in stream channels, floodplains, lakes, marshes and shallow marine environments. RM I is underlain by a faulted and down-dipping sequence of Plio-Pleistocene continental deposits that include the San Benito Gravels. RM II is underlain by relatively flat-lying Pleistocene age older alluvial deposits.

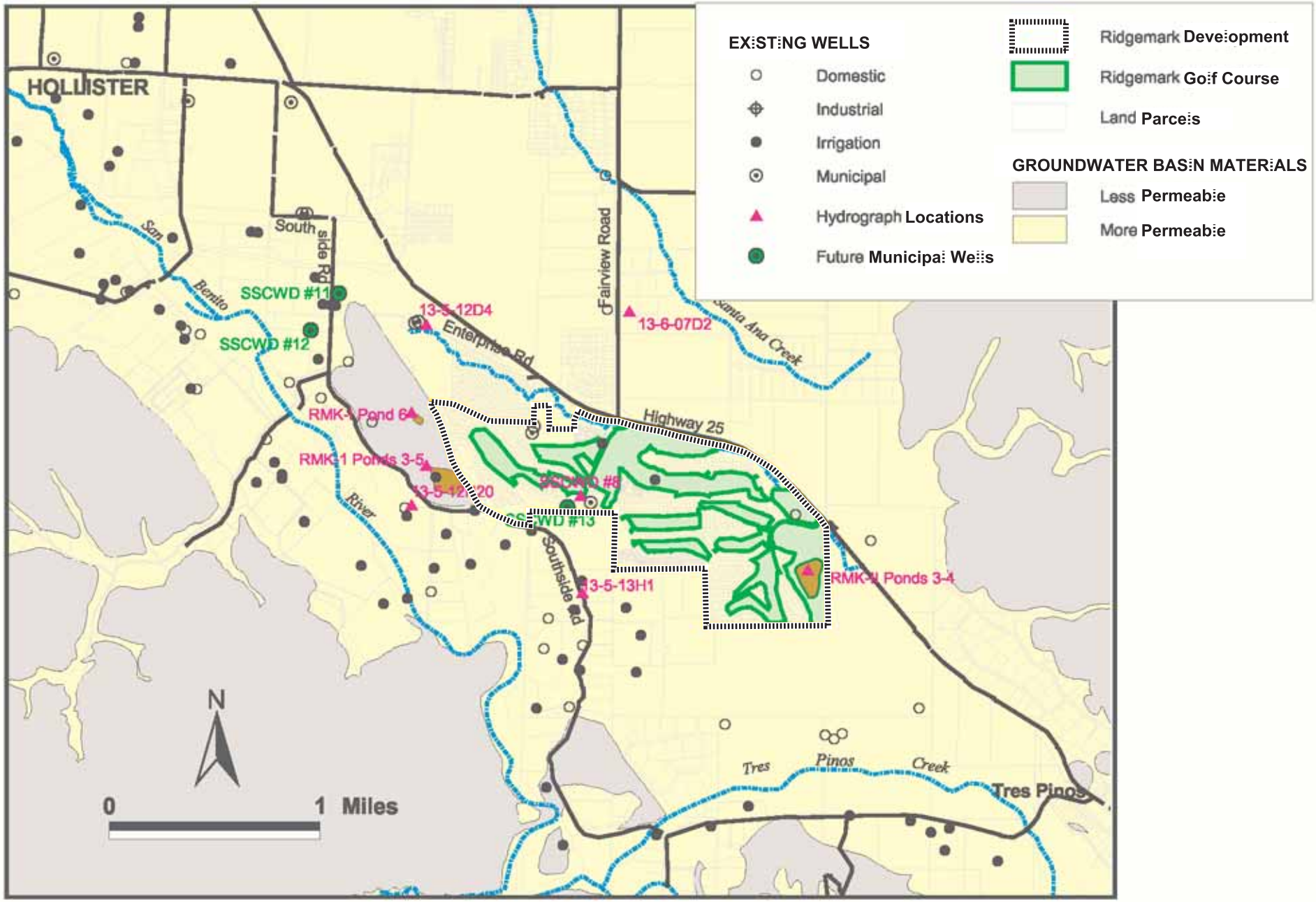
Faults that cross the groundwater basin divide it into subbasins that function somewhat independently of one another. Active faults that affect the immediate project area include the Calaveras fault and the Bolado Park (or Tres Pinos Creek) fault. The Calaveras fault passes between the Ridgemark area and Southside Road in a northwest-southeast orientation. The fault is relatively impermeable, and there is an east-to-west water-level drop of about 30 feet across it. The Bolado Park fault approximately follows the alignment of Enterprise Road and State Route 25. Groundwater backs up slightly behind the faults, creating a relatively flat water-level surface in the northwestern part of the Ridgemark development. The Ridgemark development and RM I and RM II facilities are located in the Tres Pinos subbasin (as delineated in recent SBCWD annual groundwater reports).

Groundwater is present in the small pores between the grains of sediment, and flows through these pores at a rate proportional to the slope of the water table and the permeability of the sediments. Groundwater in the Ridgemark area ranges from approximately 280 to 380 feet above sea level (an average approximately 60 to 200 feet below ground surface), with seasonal and yearly variations, as shown in Appendix C, Figure 4. Groundwater flow is generally to the northwest.

The primary natural sources of groundwater recharge for the area (southeast of where the faults intersect) is percolation from Tres Pinos Creek and deep percolation of rainfall. Other sources include percolation of applied irrigation water in residential areas and the Ridgemark golf course, and percolation from the RM I and RM II wastewater percolation ponds.

Groundwater levels, especially near wells, fluctuate in response to seasonal cycles of pumping for irrigation and groundwater recharge. They also change due to longer term declines and rises related to droughts and wet years. The location of existing groundwater wells in the vicinity of RM I and RM II and the Ridgemark development are shown on Figure 12.

[http://www.co.monterey.ca.us/oes/PDFs_and_Documents/LHMP/E4_DamFailure.pdf]



RIDGEMARK DEVELOPMENT AREA AND NEARBY WELLS

FIGURE 12

Wastewater Disposal and Groundwater Conditions

The following discussion is based upon information in the 2007 *Annual Groundwater Monitoring Report* for the SBCWD.[41]

The RM I and RM II facilities are two of five municipal wastewater treatment facilities in Northern San Benito County that use percolation and evaporation to dispose of treated wastewater.[42] The Sunnyslope County Water District sewer system serves the Ridgemark Estates subdivision and golf clubhouse/restaurant located approximately three miles southeast of the City of Hollister. Treatment facilities consist of four aerated ponds (two each at RM I and RM II) and six percolation ponds used for disposal of effluent. RM I and RM II percolated approximately 139 acre-feet of effluent in 2007. Approximately 17 acre-feet of effluent was disposed of by evaporation.

The City of Hollister owns and operates two wastewater treatment and disposal facilities. The Domestic Wastewater Treatment Plant (DWTP) is located west of downtown Hollister near the San Benito River. In 2007, this facility produced 2,087 acre-feet of effluent and percolated approximately 1,740 acre-feet. The Industrial Wastewater Treatment Facility (ITWF) is located west of downtown Hollister at the west end of South Street and on the north side of the San Benito River, less than one mile east of the Domestic Wastewater Treatment Facility. This facility produced 1,373 acre-feet of effluent and percolated approximately 1,228 acre-feet. Treated wastewater from both the DWTP and IWTF facilities have contributed to localized areas of high groundwater levels in the Hollister West subbasin. The City's and SSCWD's water and wastewater systems and wastewater recycling activities will be operated in a compatible manner under the Hollister Urban Area Water and Wastewater Master Plan.

The two other municipal wastewater treatment facilities in Northern San Benito County are the Tres Pinos facility, located on the west side of SR 25 at Tres Pinos, and the City of San Juan Bautista system. The Tres Pinos facility produced 26 acre-feet of effluent and percolated approximately 19 acre-feet in 2007. West of Hollister, the City of San Juan Bautista owns and operates a wastewater collection, treatment and unnamed, intermittent channel at a point approximately 3.5 miles southwest (upstream) of the San Benito River. The unnamed tributary is on the southwest side of the San Andreas Fault and the effluent does not recharge the local San Juan sub-basin.

3.3.2.5 *Surface Water Quality*

Land use activities, such as agricultural production, residential and commercial development, and industrial activities have had an adverse effect on surface water quality within the Pajaro River watershed. Fertilization of croplands has introduced elevated levels of nitrate and other nitrogen compounds to both surface and groundwater resources and evapotranspiration by crops has increased the salinity of soil water that percolates below the root zone to groundwater. Grazing practices and the encroachment of croplands and urban development in the watershed has reduced the coverage of riparian habitat along many stream courses and wetlands and introduced pathogens and elevated levels of nutrients to waterways.

The Pajaro River watershed is located in one of California's most active seismic areas and many of the steep upper watershed areas have active landslides, which are generally major and uncontrollable sources of sediment. The construction of unimproved roads in steep upper watershed areas has also

[41] SBCWD 2007 Annual Groundwater Report.
[42] A sixth disposal system, Cielo Vista, percolates approximately 25 acre-feet of effluent per year in a leachfield near Fairview Road and Airline Highway (SBCWD 2007 Annual Groundwater Report).

resulted in increased erosion and sedimentation throughout the watershed.

Runoff from suburban and urban development can contain oil and grease, sediment, and metals picked up from paved areas and roofs. Landscape maintenance can introduce nutrients from fertilizers and pesticides into stormwater runoff.

The San Benito River, passes within one mile of the project area, is listed as an impaired water body (Clean Water Act Section 303(b) list) for sedimentation/siltation, nitrate, and boron by the Central Coast Regional Water Quality Control Board.

Imported Surface Water (CVP)

Imported CVP (San Felipe) water is generally of excellent quality. Sources of CVP water include Shasta Lake, Whiskeytown Reservoir, Clair Engel Lake, and Folsom Lake. Constituents such as salinity (as TDS), chloride, calcium, magnesium and nitrate are substantially lower in CVP water than local groundwater. The 2007 SBCWD *Annual Groundwater Report* lists the following average concentrations for CVP water and groundwater in the Tres Pinos subbasin:

Table 3.3-5
Average Constituent Concentrations for CVP Water and Groundwater
Tres Pinos Subbasin

Constituent	CVP Water	Tres Pinos Subbasin
TDS (mg/L)	285	790
Nitrate-N (mg/L)	8	18
Chloride (mg/L)	72	112

3.3.2.6 *Groundwater Quality*

The water quality constituents of greatest concern in the Gilroy-Hollister Groundwater Basin are salinity, sodium, chloride, sulfate, nitrate, boron, arsenic, hardness, and trace elements that occasionally exceed drinking water standards. The primary constituents of concern in the vicinity of the RM I and RM II facilities are salinity, sodium, chloride, and nitrate. Hardness is also a concern for domestic groundwater users.

Salinity

Groundwater salinity refers to the concentration of total dissolved solids (TDS) in groundwater. Shallow groundwater beneath cropland with a long history of irrigation has elevated salinity that results from application of gypsum as a soil amendment and evaporative concentration of salts in applied irrigation water.

Data from three shallow monitoring wells that appear to represent ambient shallow groundwater quality upgradient of the Ridgemark I and II wastewater facilities have TDS concentrations generally in the 600-700 mg/L range. Salinity in the Ridgemark area is approximately 600-800 mg/L TDS with plumes of up to 1,600 mg/L down gradient of the RM I and RM II percolation ponds.

Chloride and Sodium

Sodium chloride is a common salt and its presence in groundwater is the result of both natural and man-made sources. Dissolved in water, sodium ions and chloride ions are measured separately. While both sodium and chloride are naturally occurring, their concentrations are increased through the use of water softeners (and wastewater disposal), fruit and vegetable processing, and other human activities. The average chloride concentration in sampled wells in the Tres Pinos subbasin between 2004-2007 was 112 mg/L. Chloride concentrations averaged 218 mg/L in the Hollister East Basin and 72 mg/L for imported CVP water. Chloride levels appear higher near RM I based upon monitoring reported in the 2007 SBCWD *Annual Groundwater Report.*

Nitrate

Nitrate ion (NO_3) is a common dissolved constituent in groundwater. It serves as a plant nutrient with the root zone of plants, but once it is flushed beneath the root zone it acts as a pollutant. Sources of nitrates include animal wastes from concentrations of livestock, fertilizer applications, natural sources, rural septic systems, and percolation of municipal wastewater**.** The average nitrate concentration in sampled wells in the Tres Pinos subbasin between 2004-2007 was 18 mg/L. This is within the acceptable range of state and federal drinking water standards (i.e., below Maximum Contaminant Levels (MCLs)).

Hardness

Most of the groundwater in the basin has a very high hardness (calcium and magnesium content). Hard water accelerates the build up of scale (a mineral deposit or coating) in pipes and water heaters, and leaves soap and salt deposits on plumbing fixtures. Residential customers generally find hardness levels greater than 180 mg/L objectionable, and therefore many residences in northern San Benito County (including the Ridgemark development) have water softeners. The water softeners contribute salt (sodium chloride) to local wastewater system flows as a by-product of water softening.

In May 2007, a Water Softener Rebate Program was initiated by the SBCWD and WRA. The program provides rebates to customers who agree to abandon and/or replace their pre-1999 inefficient water softener system with a newer, more efficient means of water softening. Newer softeners recharge only when needed, and remove more hardness per pound of salt than the older softeners, thus reducing salts in wastewater (and potentially in groundwater and surface water), reducing water use, enhancing energy efficiency, and providing cost savings to customers. The program has a goal of 1,000 water softener replacements within Zone 6 by the time of grant completion in December 2009.

Groundwater Contamination Sites

In addition to the contaminants of concern discussed above, current operations by both regulated facilities and non-point sources have introduced new local contaminants including perchlorate, metals, and volatile organic chemicals. Four regulated industrial facilities in the area have been documented as using and releasing perchlorate into the environment. The Whittaker Ordnance, McCormick Teledyne, BAE systems (United Defense), and MK Ballistics facilities are all currently required to monitor for perchlorate and report the concentrations to the RWQCB. These facilities are located downstream from the Ridgemark wastewater treatment facilities and do not affect local groundwater.

Other localized groundwater contaminants reported in the larger groundwater basin include MTBE and petroleum compounds from leaking gasoline storage tanks and volatile organic compounds at the John Smith Landfill, located east of the Hollister East subbasin. Based upon a search of the State Water Resources Control Board "Geotracker" site for Leaking Underground Tanks in October 2008, there are no reported leaking underground storage tanks in or immediately adjacent to the Ridgemark development.

3.3.3 Hydrology and Water Quality Impacts

3.3.3.1 *Thresholds of Significance*

For the purposes of this project, a hydrologic impact is considered significant if the proposed project would do any of the following:

- Violate any water quality standards or waste discharge requirements; or
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted); or
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on-or off-site; or
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-or off-site; or
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or otherwise substantially degrade water quality; or
- Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; or
- Place structures within a 100-year flood hazard area, such that flood flows would be impeded or redirected; or
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Be subject to inundation by seiche, tsunami, or mudflow.

3.3.3.2 *Flooding and Drainage Impacts from Phase 1 Improvements*

According to the Federal Emergency Management Agency (FEMA) effective Flood Insurance Rate Map (FIRM), none of the proposed Phase 1 improvements are within a 100-year flood zone. The project would not expose people, structures, or critical facilities to substantial flooding hazards.

RM I and RM II and associated recycled water pipelines are not in an area subject to inundation from dam failure of either Hernandez Dam or San Justo Reservoir.

The existing drainage patterns of improved areas at RM I is to existing ponds. Runoff from some unimproved areas flows to nearby hillslopes. Runoff also flows down the existing paved road to the site. The off-site drainage patterns will not be altered by the project. New improvements at RM I will increase impervious surfaces by approximately one acre and these areas will be drained to the

existing ponds or the new drain system that will convey flow through the new treatment facilities with disposal to existing percolation ponds after treatment.

Impact HYDRO-1: The proposed Phase 1 improvements are not in a 100-year flood zone. Proposed improvements would increase impervious surfaces at RM I, however, runoff patterns would not substantially change or result in localized flooding. **[Less than Significant Impact]**

3.3.3.3 *Impacts to Surface Water Quality from Phase 1 Improvements*

Construction Period

During construction, the removal of vegetation and/or disturbance of surface soils create the potential for erosion within the construction zone. The natural topography along the pipeline route between the Main Lift Station and RM I extends up a relatively steep slope, and erosion hazard would be greater along this segment of the pipeline construction than other areas with gentler slopes. In addition, temporary construction access roads and staging areas would be used during the construction period, including a new, temporary segment of road between RM I and Pond 6, and an access route near the proposed pipeline below RM I (Figure 8). Existing unimproved roads would be employed for construction purposes whenever possible, to reduce potential erosion.

As described in *Section 3.3.4*, erosion control measures would be implemented as part of the project for the areas disturbed during construction. In addition, hazardous materials such as fuel, oil, paint, and solvents are routinely used during construction, and the accidental spill or release of these substances could adversely affect water quality, primarily along the recycled water pipeline route.

Impact HYDRO-2: Implementation of Phase 1 improvements could result in increased sedimentation or other water quality impacts during construction of new project elements. **[Significant Impact]**

Post-Construction Period

Phase 1 of the project includes filling portions of two treatment ponds at RM I, construction of two buildings, and installation solids handling facilities. These modifications to the existing RM I facility will incrementally increase impervious surfaces, but runoff from these areas will be maintained on-site. Storm water runoff from building roofs can contain sediments from dust or contaminants associated with roofing materials. This storm water will be collected in the on-site drainage system and will be treated through the new treatment facilities before being percolated via the existing ponds. Operation of the Phase 1 improvements, therefore, would not result in impacts to the water quality of surface runoff.

Impact HYDRO-3: Implementation of Phase 1 improvements would not result in long-term water quality impacts to stormwater runoff during operation of new project elements. **[Less Than Significant Impact]**

3.3.3.4 *Impacts to Groundwater Levels and Groundwater Quality (Phase 1 and Phase 2)*

Overview

Potential impacts on groundwater were evaluated using a regional groundwater flow and transport model developed by the SBCWD and San Benito County. The model covers the entire San Benito County part of the Gilroy-Hollister groundwater basin. It is the same model used for the City of Hollister's *Long Term Wastewater Management Plan* analyses. It was constructed using the MODFLOW 2000 computer program. Model details and calibration are included in Appendix C.

The faults in the Hollister area influence groundwater flow and were key features used to divide the model into regions. Major and minor faults are represented in the model as planes of low-permeability that limit the flow of groundwater. Faults known to substantially impede groundwater flow, such as the Calaveras and Sargent faults, are assigned low permeabilities. Faults with less obvious effects on water levels are assigned higher permeabilities. Fault permeabilities were adjusted during model calibration to improve the match between measured and simulated historical water levels.

The finite difference model grid in the model includes five layers to enable simulation of vertical differences in groundwater levels and salt concentration. In the Ridgemark area, model Layer 1 is 80-120 feet thick and model Layers 2-5 are considered deep aquifers and extend to a depth of approximately 800 feet.[43] Model grid cells in the Ridgemark area are 1,000 feet by 1,000 feet.

The MODFLOW model was used to simulate potential groundwater changes under various proposed project scenarios and other regional development expected to occur by approximately 2025. In each simulation, land use, water supply sources and wastewater disposal/recycling practices were held constant at existing or future conditions. Those conditions were simulated over a 30-year period in which hydrologic conditions were assumed to be the same as the sequence that occurred during water years 1975-2004. Water demand and wastewater generation did not have increasing or decreasing trends during each simulation, but they varied from year to year in response to climatic conditions (i.e., variations in rainfall, evapotranspiration and streamflow). Using this historical hydrologic sequence enables evaluation under conditions that have been known to occur in the area in the recent past. The model employs historical rainfall, streamflow and evapotranspiration data to calculate soil moisture budgets, deep percolation and the salinity of groundwater recharge at 57 land use zones in the region.

Potential changes in groundwater quality were simulated using the MT3DMS computer program following MODFLOW. In this program, salinity is represented as the concentration of total dissolved solids (TDS). The simulated concentrations are average concentrations over the entire thickness of each layer. In reality there are vertical gradients in groundwater salinity within layers, especially in the top layer where salt enters the system from deep percolation of rain and irrigation water. Based upon water quality data from shallow monitoring wells upgradient of RM I and RM II wastewater percolation ponds, however, shallow groundwater has approximately the same salinity as water from deeper wells. This is consistent with the absence of irrigated cropland upgradient of the Ridgemark development. In this case, vertical averaging of salinity in the top layer likely underestimates concentrations at the water table, but not by a large amount. Assumed initial concentrations for the simulations in irrigated cropland, near the San Benito River, in non-cropland areas away from the river, and other locations are described in Appendix C.

[43] "Layer 1" is the top model layer. For additional details regarding the model and scenarios see Appendix C.

The evaporation ponds that could be used to reduce water content in concentrate from potable water treatment (demineralization or water softening) as a part of Phase 2 improvements would be lined.[44] Salts in evaporation ponds, therefore, would be prevented from entering the groundwater system.

Scenarios Modeled for Groundwater Depth and Salinity

Impacts of the proposed project (both Phase 1 and Phase 2 improvements) were evaluated by comparing the results of simulations that included the project to simulations of two reference conditions. The first reference condition was a simulation of *existing* (2008) conditions. Cumulative impacts of the proposed project are based on a comparison of the project simulation to existing conditions. The second reference conditions was a simulation of *background conditions* that included the approved City of Hollister DWSI and SBCWD Recycled Water Project (2006 Final EIR) and other anticipated changes in regional land use, water use and water quality. Direct impacts of the proposed project are based on a comparison of the project simulation with background conditions. The two reference condition simulations are described below, and additional details are given in Appendix C.

Existing Conditions Simulation: For the simulation of existing conditions, urban and agricultural conditions were assumed to remain the same as they are in 2008. This is consistent with building moratoriums imposed due to insufficient wastewater treatment capacity.

Background Conditions Simulation: SSCWD land use, water use and wastewater disposal were assumed to remain in their existing condition. Other basin users were assumed to have implemented changes in land use, water use and wastewater management that are expected to occur by 2025. These changes include:

- Implementation of the City of Hollister's *Long Term Wastewater Management Program*. By 2025 most of the City's wastewater would be recycled for use either in the San Juan Valley on in agricultural areas north of the City. The proposed reuse areas are far enough away from the Ridgemark area that the water level and water quality effects would not overlap with the effects of the proposed SCCWD recycled water activities.

- Increased municipal pumping of groundwater by the City of Hollister, with a new well assumed to be installed near the Hollister Airport.

- Demineralization of the City of Hollister's municipal water supply to achieve an average salinity of about 260 mg/L (compared to the existing salinity of approximately 615 mg/L). Use of demineralized water for landscape irrigation in the City's service area would decrease the salinity of groundwater recharge.

- Conversion of some nonirrigated undeveloped lands east of Fairview Road to irrigated cropland. Most of this land is one to three miles from the Ridgemark development. An exception is a parcel north of Airline Highway, opposite the east end of Ridgemark (northwest of RM II). CVP water is assumed to be the principal water supply for new cropland with groundwater supplementing water supplies during droughts.

- Land use changes expected under the San Benito County general plan, principally from agricultural to urban uses. The largest changes are along the northern edge of the City of Hollister (near the airport, San Felipe Road and Santa Ana Road). Large changes near

[44] Also refer to mitigation measure MM HYDRO-6.3 in *Section 3.3.4.2.*

Ridgemark include residential development along the west side of Fairview Road north of Highway 25 and along the east and west sides of Southside Road near Enterprise Road.

Project Conditions Scenarios: Two scenarios were modeled for the proposed project. Under the proposed project, recycled wastewater would be used for irrigation use on the Ridgemark Golf Course and demineralization would be used to lower the salinity of municipal water supply, resulting in a substantial decrease in wastewater salinity. In the first project scenario, recycled water used at the Ridgemark golf course would offset use of CVP water. In the second project scenario, recycled water used at the Ridgemark golf course would primarily offset the use of local groundwater for irrigation. This second project scenario is presented in the following discussion as the most likely condition to occur.[45] Recycled water would offset 206 acre-feet per year (AFY) of groundwater use (decreasing it from 230 to 25 AFY) and 56 AFY of CVP water (decreasing CVP use from 454 to 398 AFY). The assumptions used in the scenarios are shown in Table 3.3-6.

A third scenario looked at a condition where Phase 1 improvements would be implemented, but demineralization would not be implemented under Phase 2 and a smaller amount of recycled water (with higher salinity) would be used in lieu of groundwater for irrigation of the golf course. This scenario is discussed for informational purposes in regards to interim conditions before demineralization is implemented. This scenario does not represent the proposed project.

Changes in Groundwater Levels

The direct impacts of the proposed project are revealed by comparing simulated water levels for future project conditions with simulated water levels for background conditions. Increased future pumping at SSCWD wells, including three new wells expected to be drilled in the next 20 years to serve planned growth, cause seven feet of water-level decline along Southside Road near Enterprise Road during droughts. This decrease in groundwater levels diminished with distance to about one foot at the southeast corner of the Ridgemark area. In wet periods, river recharge compensates for the increased pumping, and groundwater levels are only about one foot lower than baseline conditions throughout the area. Contours of simulated changes in groundwater levels in and around the Ridgemark area are shown on Figure 13 for a dry year and a wet year. The changes in simulated groundwater levels reflect the superimposed effects of decreased percolation at RM I, eliminated percolation at RM II, and decreased pumping at irrigation wells for the Ridgemark golf course.

Hydrographs of local water levels on wells at and near RM I and RM II are shown on Figures 14.a and 14.b. The direct impacts of the proposed project are the differences between the blue and green lines in the hydrograph plots. Simulated groundwater levels near RM I were two to three feet lower under project conditions because of increased pumping at SSCWD municipal wells and decreased percolation at the RM I ponds. This change remained fairly constant throughout the simulation. Impacts were similar in the central part of the Ridgemark area (see hydrographs for SSCWD Well #8) and slightly smaller in the southeast corner of the area (see hydrographs for RM II ponds).

[45] Refer to Appendix C for details regarding the scenario that would offset use of CVP water only. Impacts to groundwater levels or groundwater quality would not be substantial under either scenario.

Table 3.3-6
Summary of Groundwater Modeling Assumptions

Model Assumptions	Simulation		
	Existing Conditions [Scenario 1]	**Background (Future No Project) [Scenario 2]**	**Proposed Project (Phase 1 & Phase 2) [Scenario 4B]**
SSCWD Wastewater Disposal			
Flow (AF/yr)			
RM I Ponds 3-5	160	160	119
RM I Pond 6	0	0	12
RM II Ponds 3-4	79	79	0
Irrigation	0	0	261
TDS (mg/L) [2]			
RM I	1,774	1,774	600
RM II	1,973	1,973	--
Ridgemark Golf Course Irrigation			
Sources (AF/yr)			
Groundwater	230	230	25
CVP Water	454	454	398
Recycled Water (from RM I)	0	0	261
TDS (mg/L) [weighted average]	468	468	433
SSCWD Water Supply South of Airline Highway (SR 25) [1]			
Sources (AF/yr)			
Groundwater	2,234	2,234	0
CVP Water	0	0	0
Demineralized	0	0	3,182
TDS (mg/L) [weighted average]	800	800	260
Hollister Water Supply			
Sources (AF/yr) [1]			
Groundwater	2,731	0	0
CVP Water	3,000	3,000	3,000
Demineralized	0	5,658	5,658
TDS (mg/L) [weighted average] [2]	615	270	270
Hollister Wastewater Disposal			
Flow (AF/yr)			
Percolation	3,760	1,553	1,553
Irrigation	0	4,272	4,272
TDS (mg/L)			
IWTP	1,260	1,320	1,320
DWTP and Irrigation	1,204	600	600

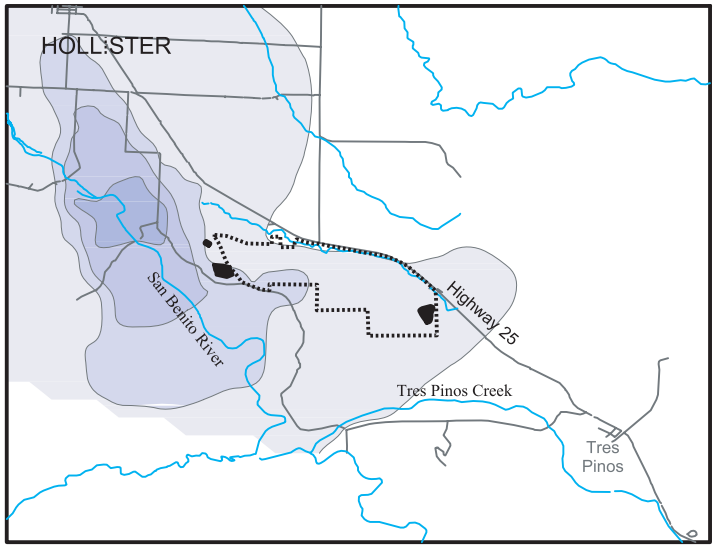
Source: Gus Yates. *Sunnyslope County Water District: Simulation of Impacts of Wastewater Alternatives on Groundwater Flow and Salinity*. July 2008 (Appendix C).

[1]Hollister plus SSCWD water use expected to increase from 7,965 in 2005 to 11,840 AF/yr in 2023. Lessalt Treatment Facility capacity of 3,000 AF/yr was subtracted to obtain groundwater or demineralized groundwater totals, of which Hollister's share was assumed to increase from 55 percent to 64 percent because of a faster assumed growth rate (2.6 percent versus 2.0 percent for SSCWD.

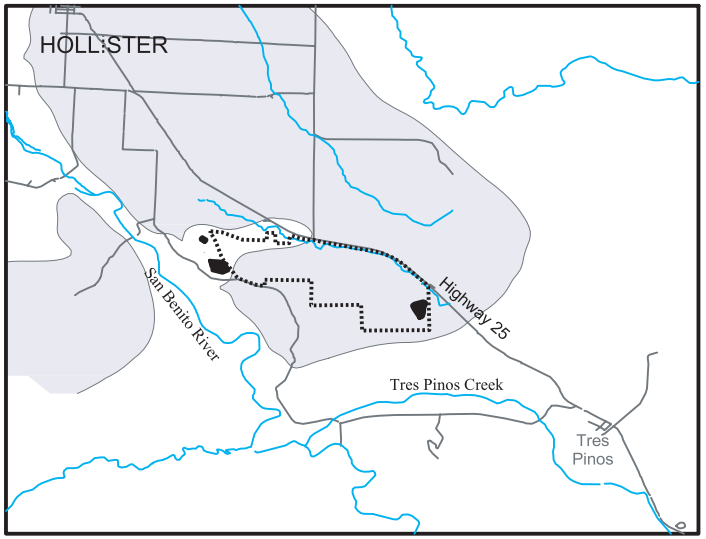
[2]Component sources for weighted average = 300 mg/L for CVP water, 260 mg/L for demineralized water and an average of about 800 mg/L for groundwater (varies by time and location for individual wells).

Change from Background (Future No Project) Condition

Dry Year (December 1990)



Wet Year (March 1998)



Change in Groundwater Level (ft)

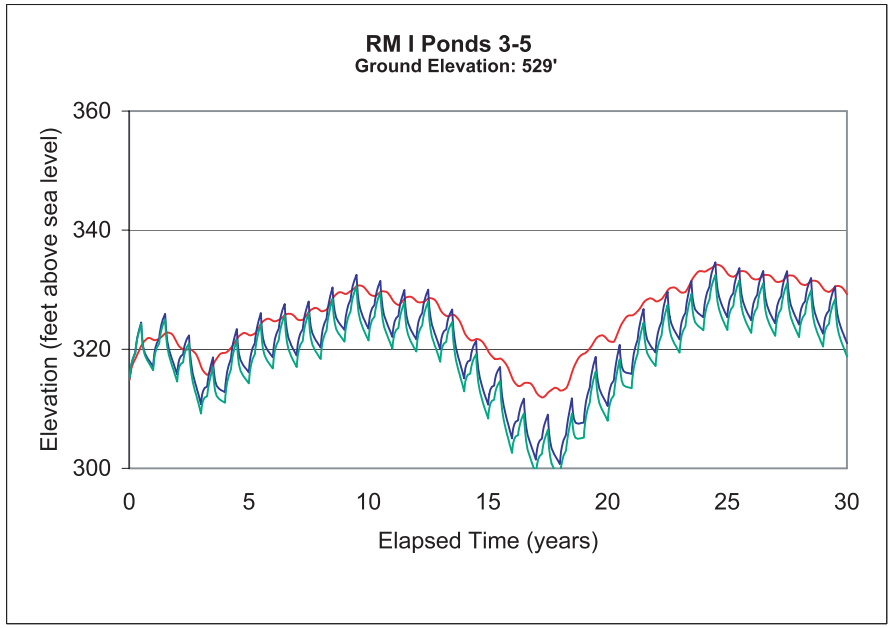
9
7
5
3
1
-1
-3
-5
-7
-9
-11
-13
-15
-17
-19
-21
-23
-25
-27

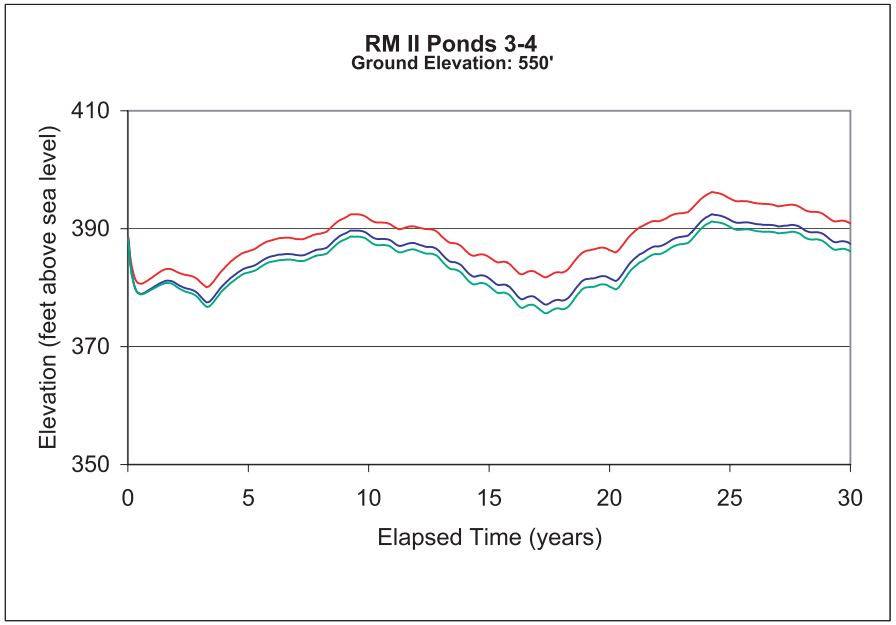
Ridgemark Development

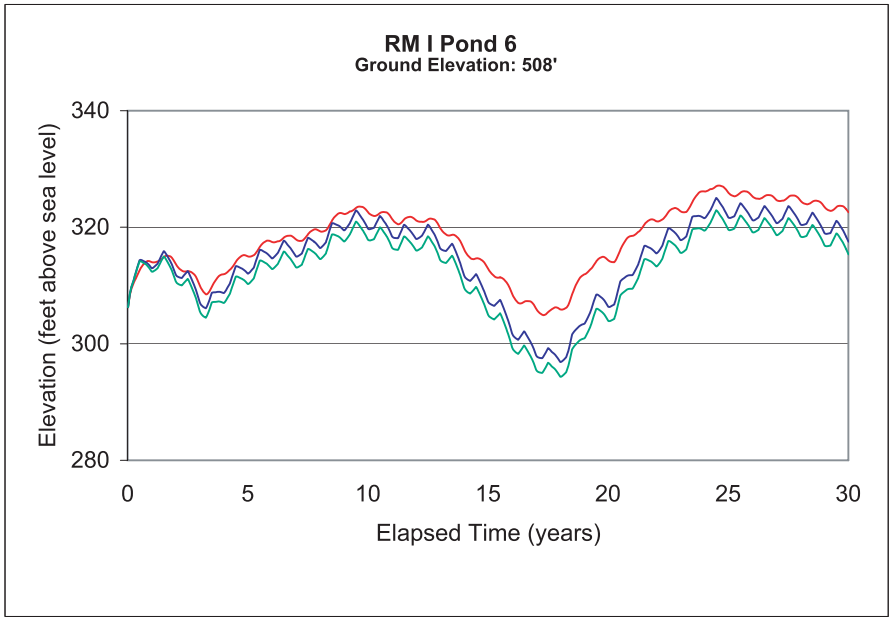
Ridgemark Effluent Percolation Ponds

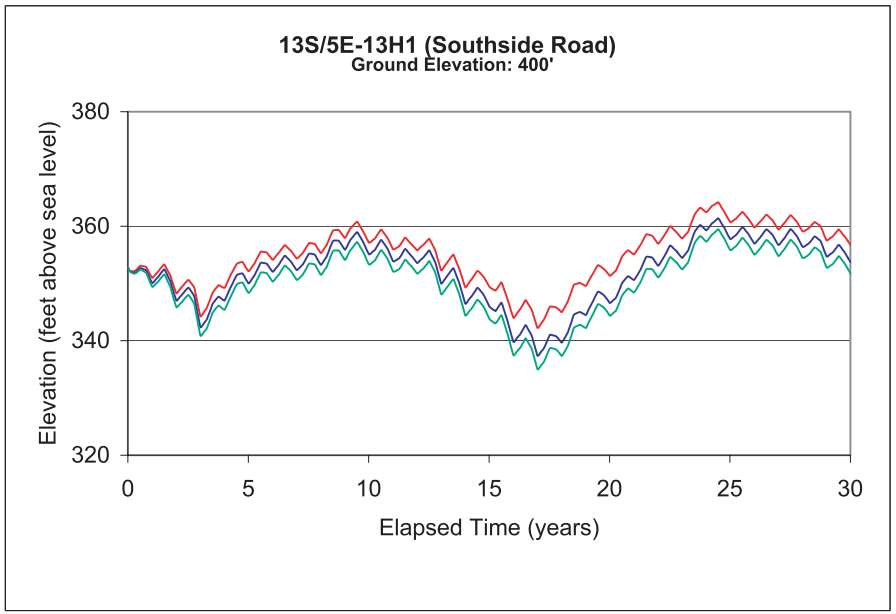
PROJECTED GROUNDWATER ELEVATION CHANGE

FIGURE 13





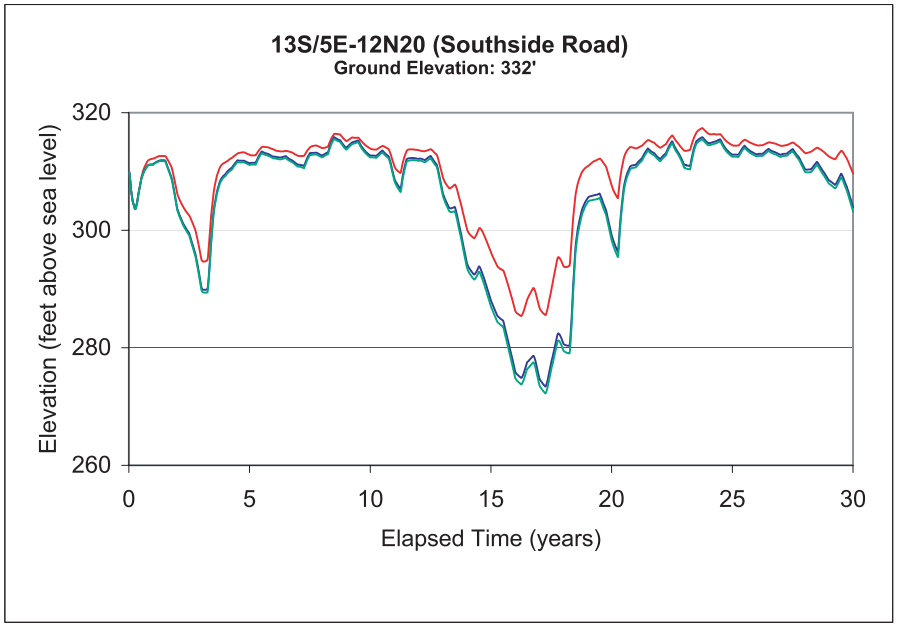


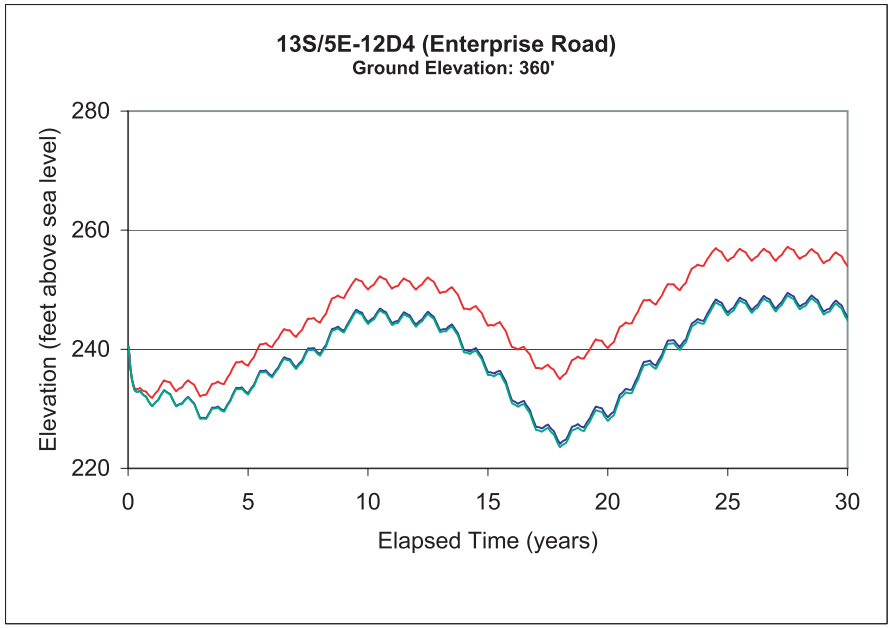


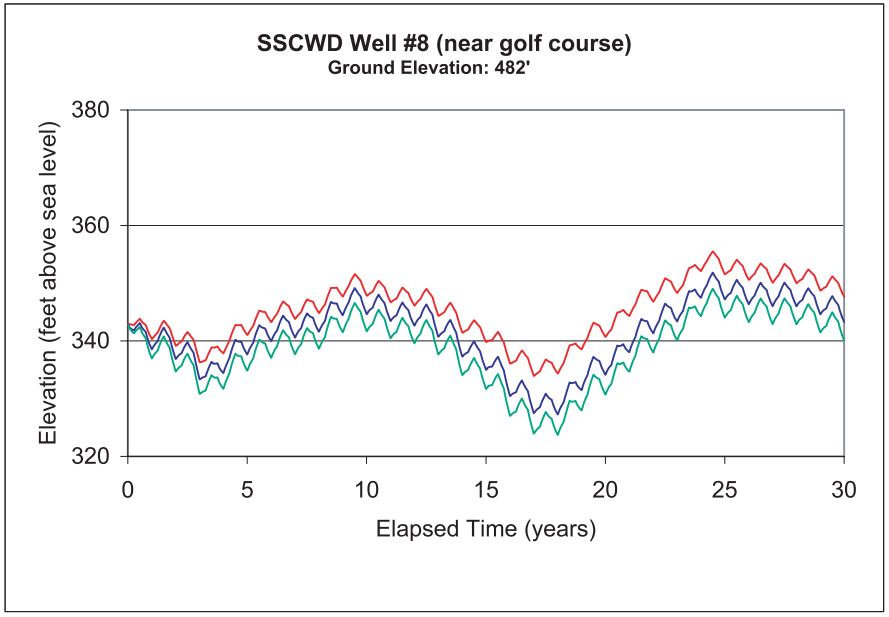
Notes: L1 refers to model layer 1. "Existing" refers to Scenario 1, "No Project" refers to future no-project conditions (Scenario 2), and "Project" refers to the current scenario.

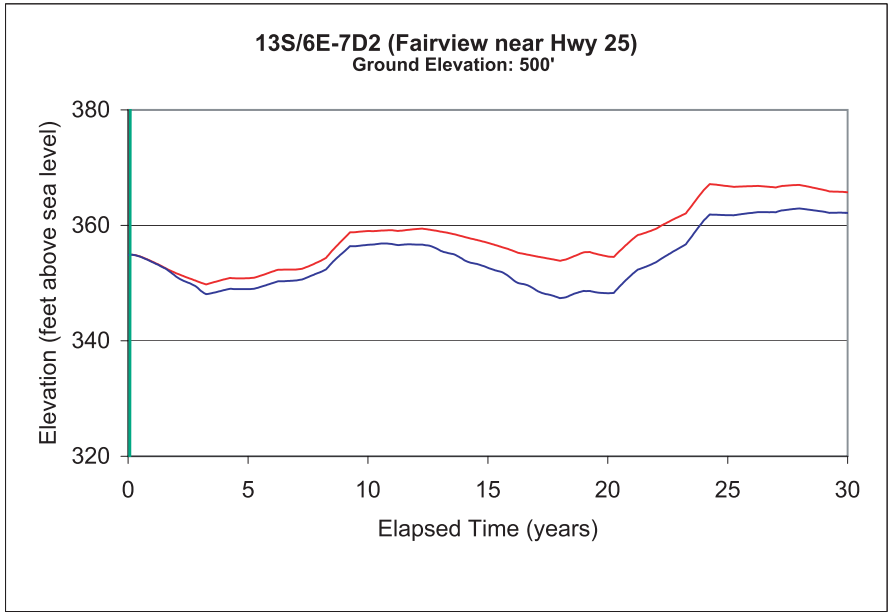
Existing Background Project

HYDROGRAPHS OF SIMULATED GROUNDWATER LEVELS (UPPER 80-120FEET: LAYER 1) FIGURE 14A









Notes: L1 refers to model layer 1. "Existing" refers to Scenario 1, "No Project" refers to future no-project conditions (Scenario 2), and "Project" refers to the current scenario.

Existing Background Project

HYDROGRAPHS OF SIMULATED GROUNDWATER LEVELS (UPPER 80-120FEET: LAYER 1) FIGURE 14B

The lowering of groundwater levels caused by the project would not create overdraft, as demonstrated by the fact that project water levels did not continue to decline relative to background water levels throughout the simulation. This means that the initial lowering of water levels resulting from the increase in SSCWD municipal pumping caused additional percolation from the San Benito River. The amount of percolation is proportional to the difference in elevation between the river and nearby groundwater levels. If water levels are lowered by pumping, percolation increases. In this case the additional percolation fully offset the increase in pumping, and groundwater levels did not continue to decline.

The lowering of water levels caused by the project also would not adversely impact the operation or yield of nearby wells. Even during droughts, simulated water levels under the proposed project were equal to or higher than historical water levels that occurred as recently as the early 1990s (prior to importation of CVP water). Most existing wells were designed to function properly with groundwater at historically low water levels.

Conversely, any increases in water table elevation beneath the RM I ponds that could occur in the event less recycled water were used would not result in any adverse effects related to poor soil drainage or soil liquefaction during earthquakes. This is because existing groundwater levels in the Ridgemark area are 60 to 200 feet below the ground level, and a water table rise of two to three feet would not begin to approach the shallow depths associated with increased liquefaction risk (less than about 30 feet) or root zone saturation of tree crops (less than about 8 feet).[46]

Impact HYDRO-4: Implementation of Phase 1 and Phase 2 of the proposed project would not adversely change groundwater levels. **[Less Than Significant Impact]**

Impacts to Groundwater Quality (Salinity)

Under the proposed project, recycled water from the RM I facility would substitute for most of the irrigation water at the Ridgemark golf course. Percolation of groundwater effluent at RM I would decrease over time even as the quantity of water treated at the RM I facility would increase (refer to Table 3.3-6).

Groundwater quality is projected to improve under the proposed project assuming that the SSCWD demineralizes its potable groundwater supplies to reduce salinity as a part of Phase 2 improvements (Figure 15). This is because the salinity (TDS concentration) of irrigation water at Ridgemark golf course would decrease when recycled water (averaging about 600 mg/L TDS) replaces groundwater (about 800 mg/L TDS) as a source of irrigation supply. Demineralization of the municipal supply would also lower the salinity of irrigation water for residential landscaping. A decrease in the salinity of irrigation water decreases the salinity of groundwater recharge and gradually decreases groundwater salinity, beginning with the upper aquifers (layer 1) and gradually benefiting deeper ones (layers 2-5). In the Ridgemark development area, the project would cause three overlapping effects: the decrease in irrigation salinity for residential landscape irrigation, the decrease in average salinity of the irrigation supply for the golf course, and the elimination of wastewater percolation in RM II ponds.

[46] Sources: Rosenberg, L.I. February 1998. *Liquefaction susceptibility of the Hollister area, San Benito County, California. Templeton, CA.* Prepared for U.S. Geological Survey, National Earthquake Hazards Reduction Program under USGS Award No. 1434-HQ-97-GR-03125 and Appendix C.

The simulated cumulative change in salinity after 30 years relative to background conditions was a decrease of about 100 mg/L TDS toward the west end of the Ridgemark development (SSCWD Well #8) grading to decreases of up to 900 mg/L at the east end (refer to Figure 15). The simulated changes in salinity remained localized within the Ridgemark area and extending downgradient (northwest) only as far as Southside Road.

These beneficial improvements in groundwater quality would affect shallow aquifers first and gradually spread downward to deeper aquifers. Hydrographs of simulated groundwater quality show how the changes occurred throughout the 30-year simulation period (refer to Figures 16.a and 16.b).

The proposed project anticipates implementation of Phase 2 potable water improvements by 2015. A simulation that evaluated only Phase 1 improvements (no demineralization and less recycled water use) found that groundwater salinity at SSCWD supply wells downgradient of the RM I ponds would increase slightly – by less than 100 mg/L – after 30 years (Appendix C). Because existing groundwater salinity in the affected area averages about 800 mg/L, this small increase would remain within the TDS objective of 1,200 mg/L stated in the RWQCB's Basin Plan. Thus, unanticipated delays in implementing demineralization would not create a risk of significant adverse impact.

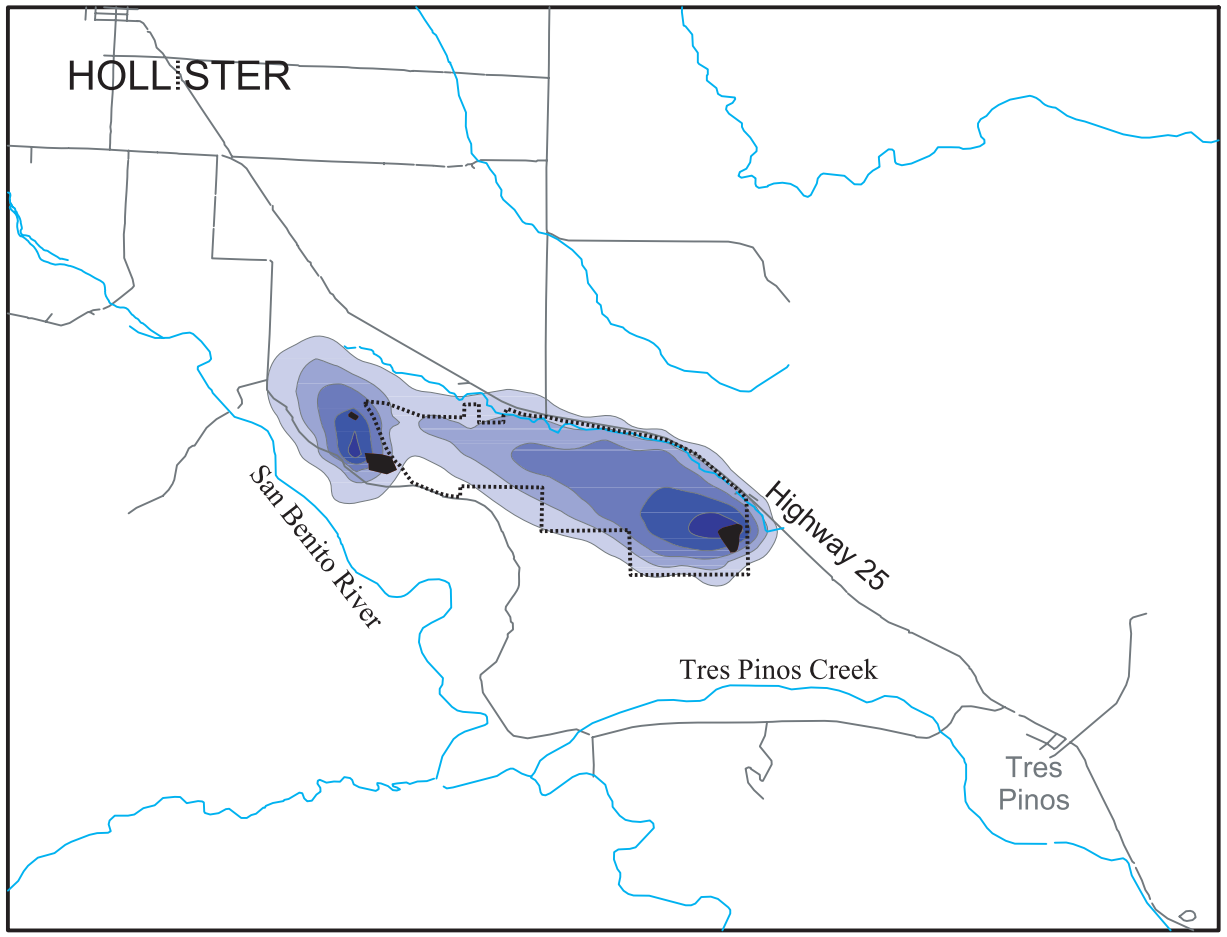
Impact HYDRO-5: Implementation of Phase 1 and Phase 2 of the proposed project would not result in a long-term increase in the salinity of groundwater supplies. **[Less Than Significant Impact]**

3.3.3.5 *Flooding and Drainage Impacts from Phase 2 Improvements*

Future potable water supply improvements would include demineralization and/or water softening of groundwater from wells. Phase 2 improvements could involve the construction of water treatment facilities, pumps, wells, pipelines, and evaporation ponds. Alternatively, deep well injection of concentrate from water treatment could be used for disposal.

In the vicinity of the SSCWD, there are areas near the San Benito River that are subject to flooding under 100-year storm conditions. Flooding impacts could be avoided by the location of Phase 2 improvements (i.e., treatment facilities and evaporation ponds) outside of areas subject to flooding or dam inundation hazards. Buried pipelines generally would not be impacted by flooding unless exposed by erosion or stream scour. During large rainfall events, such as a 100-year storm, overtopping of evaporation ponds could introduce concentrate from potable water treatment into flood flows. Since the exact location and scope of potable water treatment improvements is unknown, Phase 2 improvements could result in flooding impacts.

Impact HYDRO-6: If located in a 100-year floodplain or a dam inundation area, Phase 2 facilities could be subject to flooding impacts. **[Significant Impact]**



Compared To Background (No Project) Conditions Simulation

Change in Salinity (mg/L)

900
700
500
300
100
-100
-300
-500
-700
-900
-1100

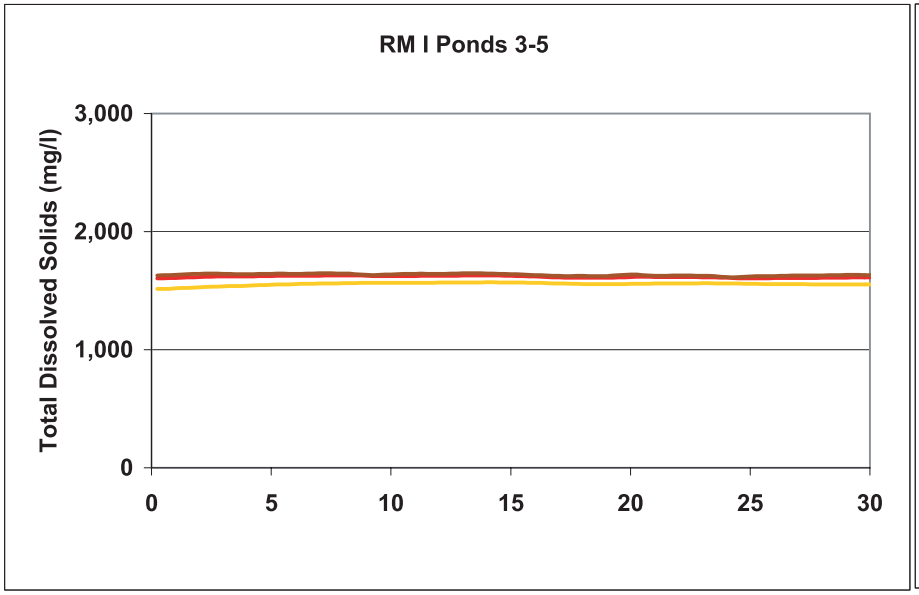
Ridgemark Development

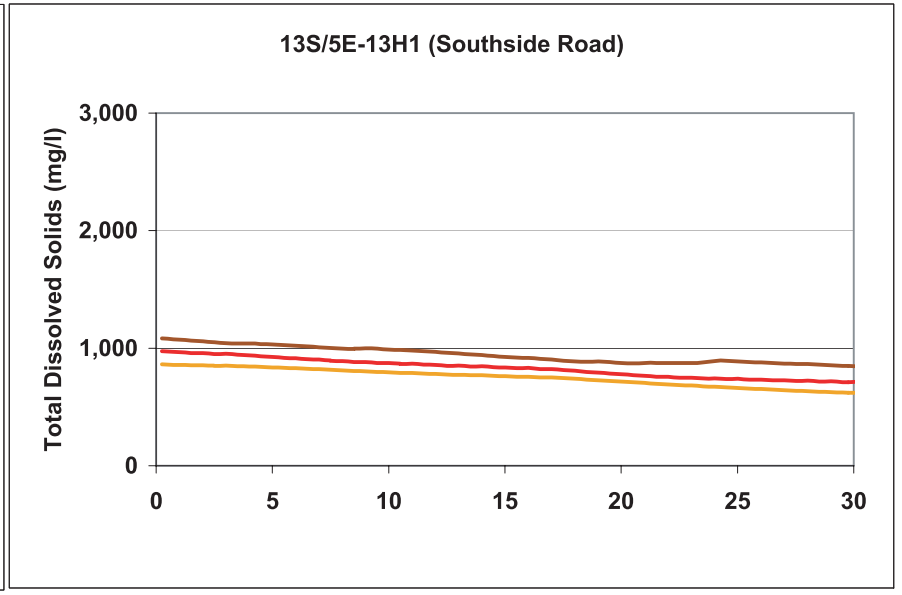
Ridgemark Effluent Percolation Ponds

PROJECTED CHANGES IN GROUNDWATER SALINITY AT YEAR 30

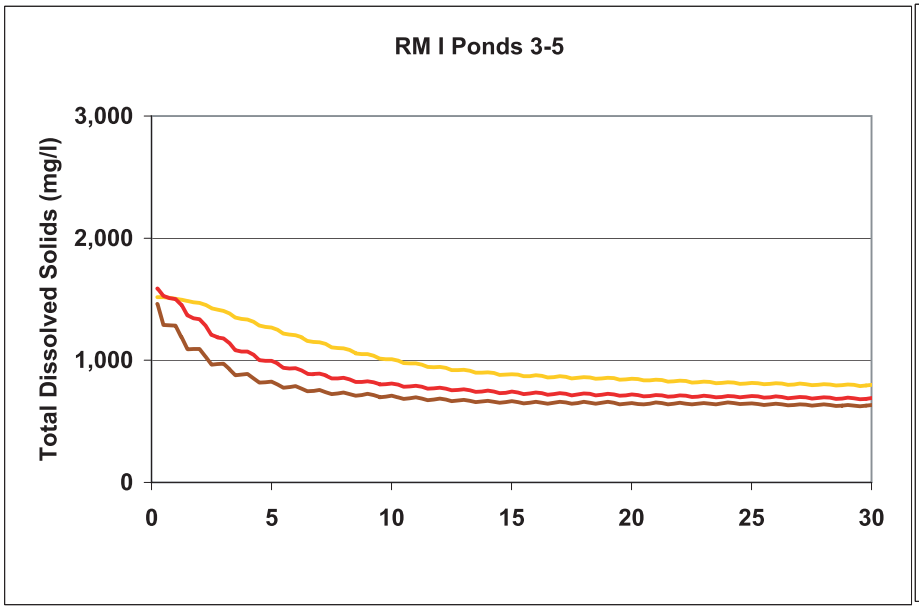
FIGURE 15

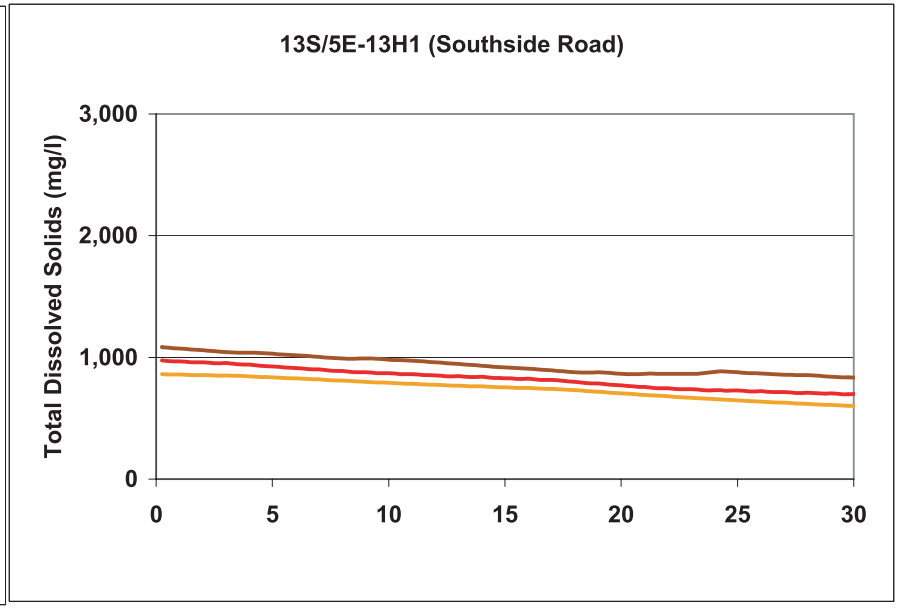
BACKGROUND (NO PROJECT) CONDITIONS





PROPOSED PROJECT



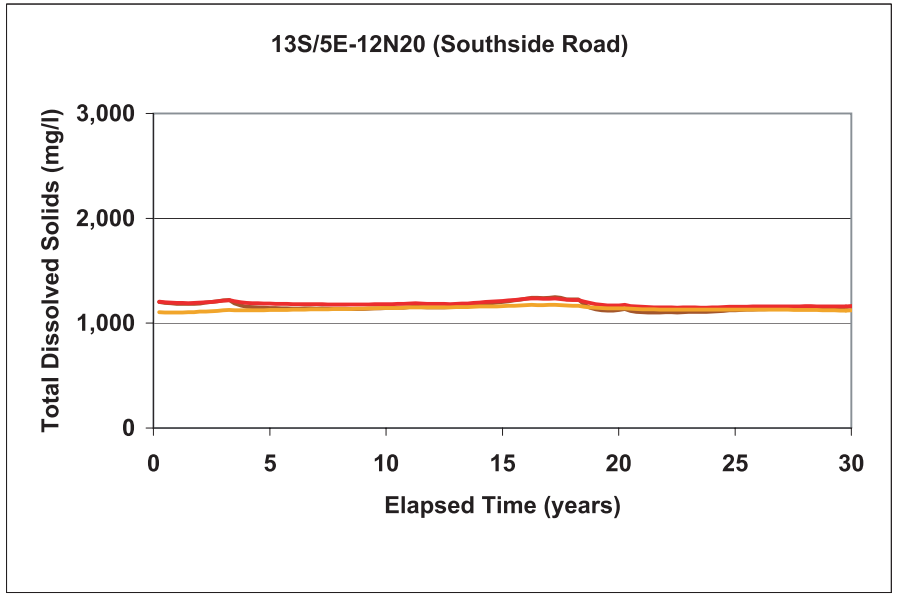


Notes: L1, L2 and L3 refer to model layers 1,2 and 5, respectively. "No Project refers to Scenario 2. "Project" refers to the current scenario.

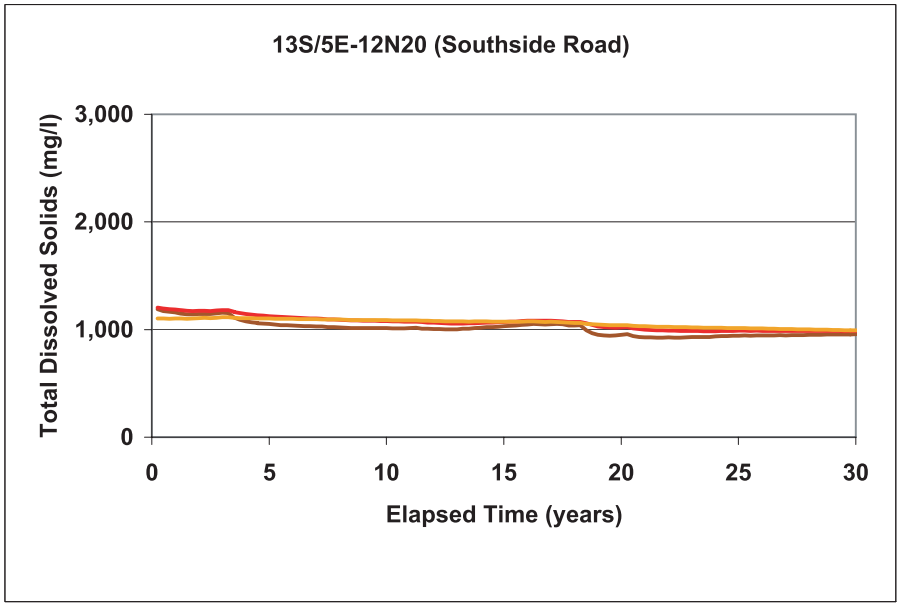
Layer 3 Layer 2 Layer 1

SELECTED HYDROGRAPHS OF SIMULATED GROUNDWATER SALINITY IN TOP THREE LAYERS FIGURE 16A

BACKGROUND (NO PROJECT) CONDITIONS



PROPOSED PROJECT



Notes: L1, L2 and L3 refer to model layers 1,2 and 5, respectively. "No Project refers to Scenario 2. "Project" refers to the current scenario.

Layer 3 Layer 2 Layer 1

SELECTED HYDROGRAPHS OF SIMULATED GROUNDWATER SALINITY IN TOP THREE LAYERS FIGURE 16B

3.3.3.6 *Impacts to Surface Water Quality from Phase 2 Improvements*

Construction Period

Phase 2 improvements would include the construction of water treatment facilities and pipelines similar to Phase 1 improvements. They also could include installation of drying beds or evaporation ponds. During construction, the removal of vegetation and/or disturbance of surface soils create the potential for erosion within the construction zone. In addition, hazardous materials such as fuel, oil, paint, and solvents are routinely used during construction, and the accidental spill or release of these substances could adversely affect water quality. Therefore, construction of Phase 2 improvements could increase some contaminants in stormwater runoff during construction, which could adversely affect water quality downstream.

Post-Construction Period

Runoff from building roofs and paved surfaces can contain sediments from dust or contaminants associated with roofing materials. Phase 2 improvements could result in impacts to surface water quality from pollutants in storm runoff.

Impact HYDRO-7: Implementation of Phase 2 improvements could result in increased sedimentation or other water quality impacts during and after construction of new project elements. **[Significant Impact]**

3.3.4 Mitigation and Avoidance Measures

3.3.4.1 *Phase 1 Project-Level Mitigation Measures*

The following measures would reduce **Impact HYDRO-2,** *Impacts to Surface Water Quality* during construction to a less than significant level.

MM HYDRO 2.1: The following mitigation measures are included in the proposed project to ensure compliance with NPDES permit requirements enforced by the Regional Board to reduce construction water quality impacts:

- The SSCWD and/or its contractors shall prepare and implement an erosion control plan, a stormwater pollution prevention plan (SWPPP) and a stormwater management plan (SWMP) consistent with recommended design criteria, in accordance with the NPDES permitting requirements enforced by the Regional Board.

- The SWPPP shall prescribe construction-period BMPs to adequately contain sediment on-site and prevent construction activities from degrading surface runoff. BMPs shall be implemented in accordance with criteria in the California Stormwater BMP Handbook for Construction or other accepted guidance. The SWPPP shall be reviewed and approved by the County prior to issuance of grading permits.

- Contractors shall be required to implement Best Management Practices (BMPs) for construction activities. The BMPs include

measures guiding the management and operation of construction sites to control and minimize the potential contribution of pollutants to storm runoff from these areas. These measures address procedures for controlling erosion and sedimentation and managing all aspects of the construction process to ensure control of potential water pollution sources. Erosion and sedimentation control practices typically include:

- limiting construction to the dry-weather months;
- installation of silt fencing and/or straw wattle;
- soils stabilization;
- revegetation; and
- runoff control to limit increases in sediment in storm water runoff (e.g., straw bales, silt fences, check dams, geofabrics, drainage swales, and sand bag dikes).

- The SSCWD shall identify the SWPPP Manager who will be the responsible party during the construction phase to ensure proper implementation, maintenance and performance of the BMPs.

3.3.4.2 *Phase 2 Program-Level Mitigation Measures*

Based on the *Groundwater Management Plan Update* and regulatory requirements under the NPDES program, the following mitigation measures shall be implemented during construction and operation of future potable water/salinity management projects (Phase 2). Implementation of these measures would reduce **Impacts HYDRO-6** and **HYDRO-7** to a less than significant level. (The impermeable barrier included in **MM HYDRO-6.3**, below, also would avoid impacts to groundwater quality as noted in *Section 3.3.3.4*.)

Flooding Impacts

MM HYDRO-6.1: Conformance to FEMA Flood Program Requirements and Local Floodplain Ordinance

At a minimum, all proposed GWMP facilities will conform will conform to FEMA Flood Program requirements and the appropriate local floodplain ordinance. Pipelines shall be buried, with excess spoils disposed of outside of the 100-year floodplain and pump stations shall be sited outside of the floodplain.

MM HYDRO-6.2: Flood Analysis

A flood analysis will be completed as a part of the design of any constructed wetlands or other project elements located within the 100-year floodplain. The flood analysis will address, at minimum, flood conveyance, potential increases in flood elevation, and any impacts to neighboring properties. Measures to avoid flooding impacts will be included in the final design of project elements. Berm heights of constructed wetlands or other facilities shall be sufficient to provide adequate freeboard above the 100-year flood event, and the outside surface of the berms shall be covered with riprap or other material to prevent erosion during peak flow events.

MM HYDRO-6.3: **Avoidance**

An impermeable barrier, that will prevent saline water from percolating into the groundwater, will be provided beneath any evaporation ponds for concentrate from groundwater demineralization or treatment.

Adequate freeboard to contain a 100-year storm event and drainage will be provided in evaporation ponds to prevent runoff from reaching surface waters.

Surface Water Quality Impacts

MM HYDRO-7.1: **Construction BMPs**

Contractors shall be required to implement Best Management Practices (BMPs) for construction activities. The BMPs include measures guiding the management and operation of construction sites to control and minimize the potential contribution of pollutants to storm runoff from these areas. These measures address procedures for controlling erosion and sedimentation and managing all aspects of the construction process to ensure control of potential water pollution sources. Erosion and sedimentation control practices typically include:

- limiting construction to the dry-weather months;
- installation of silt fencing and/or straw wattle;
- soils stabilization;
- revegetation; and
- runoff control to limit increases in sediment in storm water runoff (e.g., straw bales, silt fences, check dams, geofabrics, drainage swales, and sand bag dikes).

MM HYDRO-7.2: **Restriction On Stream Channel Construction Scheduling**

Construction activities within stream channels (i.e., diversion structures on local streams) shall be confined to the dry, summer season in order to minimize adverse impacts to local water quality.

MM HYDRO-7.3: The future potable water projects shall prepare a SWPPP in conformance with RWQCB requirements. The SWPPP shall include post-construction water quality BMPs, as appropriate. BMPs shall be designed in accordance with engineering criteria i*n the* California Stormwater BMP Handbook for New and Redevelopment or other accepted guidance and designs shall be reviewed and approved by the County prior to issuance of grading permits.

3.3.5 Conclusion

Impact HYDRO-1: The proposed Phase 1 improvements are not in a 100-year flood zone. Proposed improvements would increase impervious surfaces at RM I, however, runoff patterns would not substantially change or result in localized flooding. **[Less than Significant Impact]**

Impact HYDRO-2: Implementation of Phase 1 improvements could result in increased sedimentation or other water quality impacts during construction of new project elements. Implementation of mitigation measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

Impact HYDRO-3: Implementation of Phase 1 improvements would not result in long-term water quality impacts to stormwater runoff during operation of new project elements. **[Less Than Significant Impact]**

Impact HYDRO-4: Implementation of Phase 1 and Phase 2 of the proposed project would not adversely change groundwater levels. **[Less Than Significant Impact]**

Impact HYDRO-5: Implementation of Phase 1 and Phase 2 of the proposed project would not result in a long-term increase in the salinity of groundwater supplies. **[Less Than Significant Impact]**

Impact HYDRO-6: If located in a 100-year floodplain or a dam inundation area, Phase 2 facilities could be subject to flooding impacts. Implementation of program-level mitigation measures included in the project would reduce these impacts to a less than significant level. **Less than Significant Impact with Mitigation Measures Included in the Project]**

Impact HYDRO-7: Implementation of Phase 2 improvements could result in increased sedimentation or other water quality impacts during and after construction of new project elements. Implementation of program-level mitigation measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

3.4 BIOLOGICAL RESOURCES

The following discussion is based on the "Ridgemark Wastewater Treatment and Recycled Water Improvement Project (Sunnyslope County Water District) – Biotic Evaluation in Support of CEQA Plus, Hollister, California," prepared by *Live Oak Associates, Inc.,* in October 2008. This report is attached to this EIR as Appendix D.

3.4.1 Introduction and Regulatory Framework

3.4.1.1 *Threatened and Endangered Species*

State and federal "endangered species" legislation has provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Permits may be required from both the CDFG and USFWS if activities associated with a proposed project will result in the "take" of a listed species. "Take" is defined by the state of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFG and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

Special-Status Species

Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as "species of special-status." Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by the CDFG. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as "special-status species."

3.4.1.2 *Migratory Birds*

State and federal laws also protect most birds. The Federal Migratory Bird Treaty Act (16 U.S.C., sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.4.1.3 *Birds of Prey*

Birds of prey are also protected in California under provisions of the California Fish and Game Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any

such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFG.

3.4.1.4 *Wetlands and Other Jurisdictional Waters*

U.S. Army Corps of Engineers

Natural drainage channels and adjacent wetlands may be considered "Waters of the United States" (hereafter referred to as "jurisdictional waters") subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition; and
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by "ordinary high water marks" on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction under the SWANCC decision, is regulated by the RWQCB.

It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

California Department of Fish and Game

The California Department of Fish and Game has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these drainages are regulated by the CDFG via a "Streambed Alteration Agreement." Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

Scale: 1" = ± 1,320'
Source: Live Oak Associates, Inc. October 2008.

BIOLOGICAL HABITATS

FIGURE 17

3.4.1.5 *Groundwater Management Plan (Water Resources Association)*

The *Groundwater Management Plan Update for the San Benito County Part of the Gilroy-Hollister Groundwater Basin* (GWMP) (2004) is the result of a collaborative planning process by the Water Resources Association of San Benito County (WRA). The WRA is an association of the City of Hollister, City of San Juan Bautista, Sunnyslope County Water District, and San Benito County Water District. The member communities and districts of the WRA are responsible for the implementation of programs and elements described in the GWMP Update in the Northern San Benito County area. Implementation of the GWMP Update consists of voluntary, coordinated actions by the participating communities and districts of the WRA.

The (GWMP) includes goals and objectives for short-term and long-term management of water resources in Northern San Benito County. It is the principal plan for the management of groundwater in Hollister, San Juan Bautista, the San Benito County Water District and the Sunnyslope County Water District within the Gilroy-Hollister Groundwater Basin. The GWMP addresses surface and groundwater management as well as wastewater treatment discharges and use of recycled water supplies. The GWMP includes program mitigation measures to be applied as future project, such as wastewater treatment recycling projects, are designed and implemented. These include a range of mitigation measures to avoid or reduce impacts to sensitive habitats and special-status species.

3.4.1.6 *Local Ordinances and Habitat Conservation Plans*

No habitat conservation plans (HCP) or natural community conservation plans (NCCP) or other local ordinances are in effect for this project. While a draft HCP had been underway in this region for some time, this effort is no longer moving forward. However, San Benito County adopted Ordinance 541 in 1988 to set and collect fees for financing the HCP and for San Joaquin kit fox protection measures. These fees are to be paid by the applicant as a condition of the issuance of a building permit. Monies paid through this ordinance do not provide take authorization under the federal or state Endangered Species Acts.

3.4.1.7 *SRF CEQA-plus Requirements*

The biological evaluation was prepared in part to comply with the environmental review requirements for the State Revolving Fund (SRF) Loan Program administered by the California State Water Resources Control Board (SWRCB) for wastewater treatment systems operators. The SRF Loan Program is partially funded by the U.S. Environmental Protection Agency (EPA) and subject to federal environmental regulations, including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA), among others. The EPA has chosen to use CEQA as the compliance base for the SRF Loan Program (in addition to compliance with the federal ESA, NHPA and CAA), instead of the federal National Environmental Policy Act (NEPA). Collectively, the SWRCB refers to these additional requirements as "CEQA-Plus." The project must be carried out in compliance with each of the federal programs listed above, in addition to the requirements of CEQA.

3.4.2 Existing Setting

The Ridgemark Waste Water Treatment and Recycled Water Improvement Project is proposed within the Ridgemark residential development, located in the southeast corner of Hollister and on the south side of State Route 25. The Ridgemark development is a gated community consisting of single-family homes situated around an 18-hole golf course. Many of the streets in the development are tree-lined, and planted with a variety of ornamental species. The Ridgemark development is generally surrounded by agricultural lands with residential development to the northwest. Surrounding land uses include single-family residential development, rural residential development, and agriculture.

Live Oak Associates, Inc., completed field surveys of the project site in March and April of 2008. In addition to the field surveys, sources of information for the biology report include the California Department of Fish and Game's *California Natural Diversity Database,* the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California,* and manuals and references related to plants and animals of the region these sources were consulted to compile information on biological resources likely to be found within the project area.

3.4.2.1 *Biotic Habitats*

Four biotic habitats occur within the Phase 1 study area (the Ridgemark residential and golf course area). For the purposes of this report, the habitats have been identified as developed habitat, ruderal non-native grassland, manmade ponds, and seasonal drainage/riparian. A list of the plant species observed within the study area during the March and April 2008 field surveys and the vertebrate animals using, or potentially using, the project site are provided in Appendix D of this EIR.

Developed Habitat

The majority of the Phase 1 project site consists of wastewater treatment facilities, residential development, and a golf course, most of which can be considered developed habitats. Developed habitats can support certain wildlife species adapted to the nesting and foraging opportunities found there, but wildlife abundance and diversity is generally low. Mammals such as skunks, raccoons, and Virginia opossums occur regularly in urban habitats, and birds adapted to developed landscapes include house finches, northern mockingbirds, mourning doves, European starlings, house sparrows, and rock doves (pigeons).

Ruderal Non-Native Grassland Habitat

Non-native grasslands can provide important habitat to many terrestrial vertebrates. A number of these species are expected to utilize grasslands occurring on the site throughout all or part of the year as breeding and/or foraging habitat. However, a particular habitat's importance to the wildlife of a region can be affected by many factors including the proximity of suitable nesting sites, the amount of available escape cover, the availability of water and food, as well as the amount of human disturbance. The ruderal grasslands of the study area offer moderate value to wildlife in the area.

There are several areas within the Ridgemark development and around treatment ponds that support undeveloped land consisting of ruderal non-native grasslands, which are shown on Figure 17. Ruderal grassland is located in several separate areas of the project site, including "Ruderal Grassland I" near RM I, "Ruderal Grassland II" near Pond 6, and "Ruderal Grassland III" in the center of the northern route (pipeline alternative route).

Vegetation: Common grasses, forbs, and shrubs observed throughout the ruderal areas of the project area include, but are not limited to: soft chess, Mediterranean barley, black mustard, alkali mallow, broad leaf filaree, slender wild oat, lupine, ice plant, coyote bush, prickly lettuce, and field bindweed.

Reptiles: Reptilian species, such as the western fence lizard, southern alligator lizard, gopher snake, common garter snake, and western rattlesnake may or do occur within the undeveloped grasslands, and would forage for insects, small mammals, and birds on the site.

Birds: Many resident and migratory birds breed and forage within grassland habitats. Birds directly observed foraging in or over these fields include the red-shouldered hawk, red-tailed hawk, killdeer, rock dove, mourning dove, Anna's hummingbird, black phoebe, American crow, American robin, northern mockingbird, European starling, song sparrow, golden-crowned sparrow, red-winged blackbird, western meadowlark, purple finch, and house sparrow. Other resident and migratory birds that may occur in the grassland areas of the study area include the burrowing owl (evidence of which was observed at Pond 6), white-tailed kite, northern harrier, golden eagle, American kestrel, western kingbird, loggerhead shrike, western scrub-jay, common raven, yellow-billed magpie, yellow-rumped warbler, savannah sparrow, brown-headed cowbird, brewers blackbird, house finch, lesser goldfinch, and American goldfinch.

Mammals: Evidence of small mammals was found in the grasslands of the study area, including California meadow vole, Botta's pocket gopher, and black-tailed hare. The ornate shrew, cottontail, and western harvest mouse are also expected to occur throughout the grassland areas of the study area. Such small mammals often attract predators, including some of the reptiles and birds previously discussed. The abundance of these species also attracts larger mammals known to occur in the region, including the coyote, red fox, raccoon, American badger, striped skunk, and bobcat. The larger of these predators also prey on large mammals such as the black-tailed deer, evidence of which was observed during a site visit.

Manmade Pond Habitat

Multiple manmade ponds occur throughout the study area and potential impact areas (refer to Figure 17). These ponds are comprised of water treatment and evaporation ponds (RM I, RM II and Pond 6), and irrigation and mixing ponds that occur throughout the golf course. Although these ponds are manmade, they provide suitable habitat for a variety of wildlife.

Aquatic Species: Aquatic species observed in the irrigation mixing ponds included the carnivorous largemouth bass, adult catfish, western mosquitofish and Louisiana red-swamp crayfish.

Birds: Avian species observed in the various ponds included Canada goose, mallard, ruddy duck, lesser scaup, bufflehead, American coots, black-necked stilt, tree swallow, violet-green swallow, barn swallow, and red-winged blackbird. Other avian species that may occur in these ponds during migration or breeding include gadwall, American wigeon, Eurasian wigeon, northern pintail, cinnamon teal, canvasback, common goldeneye, American avocet, and marbled godwit. Evidence (white wash, feathers, and pellets) of burrowing owls was found at a large burrow adjacent to Pond 6.

Mammals: Many of the mammals that occur in the grassland areas of the site also occur around the various ponds of the study area. Pond 6 was not inundated during the March and April 2008 surveys and avian activity was relatively low, with species such as black phoebe and sparrows utilizing this area; however there was abundant evidence of mammal use. Prints and scats of raccoon, badger, bobcat and deer were all observed within the confines of Pond 6.

Seasonal Drainage and Riparian Habitat

A relatively small seasonal drainage/riparian corridor occurs along a portion of the southern boundary of the study area (Figure 17), runs parallel to Marks Drive for approximately one-third of a mile from east to west, and is adjacent to a mixing pond. A portion of the golf course occurs on either side of this feature, and residential uses are located to the north.

Although this drainage does not appear to be a tributary to other waters, and is not designated by a dashed or solid blue line on USGS topographic maps, it does have a defined bed and bank and supports woody vegetation characteristic of riparian areas. This feature contained a small amount of water during the March and April 2008 surveys. The feature does not support deep pools suitable for breeding by special-status reptiles and amphibians. The understory of the drainage area included mostly non-native species, with additional ruderal species occurring in the grasslands of the study area.

Reptile and Amphibians: Several additional reptile and amphibian species may occur here, due to the moisture and leaf litter that is not likely to occur in other habitats of the study area. These species include ensatina, arboreal salamander, western toad, Pacific chorus frog, and western skink.

Birds: Many of the avian species already mentioned visit this habitat. In addition, acorn woodpeckers were observed within the riparian corridor, and a pair of red-shouldered hawks was observed close to the riparian corridor. Other species that may occur in this habitat either regularly or during migrations include Cooper's hawk, northern flicker, downy woodpecker, Nuttall's woodpecker, bushtit, rufous-sided towhee, brown towhee, dark-eyed junco, northern oriole, and lesser goldfinch.

Mammals: Mammalian species that occur in other parts of the study area are also expected to occur in the seasonal drainage/riparian habitat. The mature trees of the riparian corridor may also support habitat for a variety of bat species including Yuma myotis, long-eared myotis, big brown bat, western red bat, hoary bat, and pallid bat.

3.4.2.2 *Movement Corridors*

Many terrestrial animals need more than one biotic habitat in order to perform all of their biological activities. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles. Terrestrial animals use ridges, canyons, riparian areas, and open spaces to travel between their required habitats.

The importance of an area as a movement corridor depends on the species in question and its consistent use patterns. Animal movements generally can be divided into three major behavioral categories:

- Movements within a home range or territory;
- Movements during migration; and
- Movements during dispersal.

While no detailed study of animal movements has been conducted for the study area, knowledge of the site, its habitats, and the ecology of the species potentially occurring onsite permits sufficient predictions about the types of movements occurring in the region and whether or not the proposed project would constitute a significant impact to animal movements.

As noted above, the developed nature of the study area offers a moderate habitat value to wildlife in the project's vicinity. The more common species that occur have largely utilized the study area as part of their home range and to disperse from and across the site. These animals would move through all portions of the site, as they would also do on surrounding agricultural lands and open spaces. Due to the highly modified nature of the study area, it is likely only used in a limited way and does not provide a regionally unique corridor for movement of wildlife; however the various ponds may act as stepping stones for migratory bird species.

3.4.2.3 *Special-Status Species*

A number of special-status plants and animals occur in the vicinity of the site. Based on information from the California Natural Diversity Data Base (CNDDB), an evaluation was made of several U.S.G.S. topographic quadrangles for the potential for special-status plant and animal species to occur on the site or in the area.

Special-Status Plants

There is only one federally endangered plant species, two-fork clover (*Trifolium amoenum*), listed in the search of published biological data for these quadrangles. The plant was last observed in 1903, and may be extirpated. It is absent from the study area.

Suitable habitat (e.g., serpentine habitats, wetlands, marshes and swamps, coniferous forest, chaparral, coastal scrub, etc.) for regional special-status plants is completely lacking from the study area due to its developed nature, and the fact that the study area is either above or below the known elevation range for these plants.

Special-Status Animals

Several special-status animal species that occur or once occurred within the region of the study area are absent due to a lack of suitable habitat requirements, or because the study area is outside the species' known range. These species include steelhead, foothill yellow-legged frog, San Joaquin whipsnake, western yellow-billed cuckoo, bank swallow, least Bell's vireo, and yellow-breasted chat.

3.4.2.4 *Special-Status Species Meriting Further Discussion*

Most of the special-status animal species that have been documented in the region may occur rarely or occasionally on the site. For these species, sufficient information exists to evaluate the possible impacts that proposed pipeline project may have on them. A few of the state- and/or federally-listed species require additional in-depth analysis. Below are detailed discussions that include an analysis of these animal's legal status, ecology, and the suitability of the site to support them.

California Tiger Salamander

The California tiger salamander (CTS) (*Ambystoma californiense)* is listed as federally-threatened and a state Species of Special Concern. The California tiger salamander is a large terrestrial salamander, with adults attaining a total length of over eight inches. Adult California tiger salamanders breed from late November through February, following the onset of winter rains. Both males and females travel up to one mile or more during nocturnal breeding migrations from subterranean refuge sites (i.e., small mammal burrows) to egg deposition sites in long-lasting, rain-filled vernal pools.

Anecdotal evidence indicates that salamanders have a high degree of site fidelity to their breeding ponds and also to the small mammal burrows they use for refuge. Sites used for reproduction are typically natural pools that fill with rainwater and artificial stock ponds; however, salamanders have also been observed to breed in springs, wells, artificial reservoirs, quarry ponds, manmade canals, and rarely, in the slack waters of oxbows in small- to medium-sized streams. Such sites may, or may not contain dense amounts of aquatic and streamside vegetation. The highest numbers of larvae appear to occur in aquatic habitats that are largely devoid of any vegetation and contain very turbid water. Salamanders may also turn up in certain manmade structures (e.g. wet basements, wells, swimming pools, underground pipes, and septic tank drains), sometimes many years after their local breeding site has been destroyed by urbanization.

Juvenile and adult salamanders typically use the burrows of California ground squirrels and pocket gophers as underground refuges, but may use a variety of burrows including cracks within the soil. Juvenile and adult salamanders are especially common in situations where piles of concrete, rock, or other rubble are mixed with dirt and are located near breeding sites.

Occurrence on Site: California tiger salamanders have been observed in a pond located at the terminus of Paullus Drive within the study area (referred to as the "mitigation pond," Figure 17). This pond has apparently been protected as a mitigation pond for the species. Project biologists observed larvae in this pond in 1999, and the species is still presumed to be present. This "mitigation" pond is outside of the potential impact area, and none of the ponds within the potential impact area could support California tiger salamander due to predacious species (e.g., bass, catfish, crayfish, etc.) and chemicals used to treat the water for algae control.

California Red-Legged Frog

The California red-legged frog (*Rana draytonii*) was listed as a federally-threatened species in 1996, and is the largest native frog in California. The frog was listed as a threatened species because it had been extirpated from 70 percent of its historic range, and remaining populations are currently threatened by a wide variety of human impacts.

Adult California red-legged frogs have been observed breeding from late November through early May after the onset of warm rains. Males usually remain at the breeding sites for several weeks after reproduction before moving to foraging habitats, while females immediately remove to foraging habitats. Based on limited field data, California red-legged frogs appear to live up to 10 years in the wild. Adult frogs apparently eat a wide variety of animal prey including invertebrates, small fishes, frogs, and small mammals.

California red-legged frogs have been observed in a number of aquatic and terrestrial habitats throughout their historic range. Larvae, juveniles, and adult frogs have been collected from natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stockponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs. The key to the presence of frogs in these habitats is the presence of perennial (or near perennial) water and the general lack of introduced aquatic predators such as largemouth bass, green sunfish, and bluegill, crayfish, and bullfrogs.

The habitats observed to contain the largest densities of red-legged frogs are associated with deep-water pools greater than 27 inches deep, with stands of overhanging willows and an intermixed fringe of cattails, tules, or sedges. However, California red-legged frogs have also been observed to

inhabit stock ponds, sewage treatment ponds, and artificial (i.e., concrete) pools completely devoid of vegetation. During wet periods (especially in the winter and early spring months), red-legged frogs can move long distances (e.g., one mile) between aquatic habitats, often over areas that are considered to be unsuitable for frogs (e.g., roads, open fields, croplands, etc.). Such activities can result in frogs ending up in isolated aquatic habitats well away from the nearest known frog populations.

***Occurrence on Site**:* California red-legged frogs have been observed by project biologists in 1999 in the pond located at the terminus of Paullus Drive. It is presumed that this population still exists. However, this pond is outside of the potential impact area, and none of the ponds (i.e., mixing ponds or wastewater ponds) within the potential impact area would support the frogs due mainly to chemicals used to treat the water, and the inhospitable matrix that the animal would have to navigate to reach one of the mixing ponds found within the golf course.

Western Spadefoot

The western spadefoot (*Spea hammondii*) is designated as a Species of Special Concern with the California Department of Fish and Game, and classified as "protected" by the CDFG. Although this amphibian no longer has an official status as a candidate species for potential listing under the Federal Endangered Species Act by the U.S. Fish and Wildlife Service, it nonetheless has disappeared from more than 30 percent of its native range in north and central California. A significant percentage of remaining populations are currently threatened by a wide variety of human impacts including urban encroachment, construction of reservoirs and water diversions, introductions of exotic predators and competitors, sand and gravel operations, livestock grazing, and habitat fragmentation.

The spadefoot's range is nearly all in California, with a range extending from the vicinity of Redding, Shasta County, southward into northwestern Baja California, Mexico, and entirely west of the Sierran-desert range axis. The status of western spadefoot is stable to declining.

It is estimated that more than 30 percent of the habitat in Northern and Central California once known to be occupied by the spadefoot has been developed or converted to uses incompatible with the survival of this species. Regions severely affected include the lower two-thirds of the Salinas River system, and much of the areas east of Sacramento, Fresno, and Bakersfield. Moreover, in, many areas of the Central Valley, remaining suitable rainpool or vernal pool habitat, which is concentrated on valley terraces along the edges of the valley floor, has been disappearing in a fragmented fashion, which may present a significant threat to spadefoot populations.

Western spadefoots have been observed in a variety of habitats, but are most common near the sand or gravelly soils of rain pools and stock ponds in grassland and oak woodland habitats at elevations below 3,000 feet. They have also been observed in sewage treatment ponds and sand and gravel ponds, as well as the temporary pools of intermittent streams. Spadefoot larvae are unable to coexist with introduced fishes of any kind; therefore they do not inhabit perennial aquatic habitats. Western spadefoots are eaten by a wide variety of natural predators during each of their life stages. Known predators include California tiger salamander, introduced bullfrogs, garter snakes, great blue herons, burrowing owls, and raccoons. California tiger salamander larvae can be significant predators of larval western spadefoots in their breeding ponds.

Occurrence on Site: Western spadefoots were observed within the study area in 1999 in the area of the pond located at the terminus of Paullus Drive; and they were observed again to the north of the golf course entrance in 2005. It is presumed this species still occurs in the northernmost areas of the study area.

Western Pond Turtle

In 1992, based on concerns about widespread population declines due to the extensive loss of habitat, overexploitation, and introductions of non-native aquatic predators, the U.S. Fish and Wildlife Service was petitioned to list the western pond turtle (*Actinemys marmorata)* as an endangered species under the authority of the Endangered Species Act. The FWS subsequently ruled that the petition was not warranted. However, the California Department of Fish and Game has subsequently included this organism in its list of "Species of Special Concern" and no longer allows the take of this species without the expressed permission of the CDFG.

The western pond turtle is the only native aquatic (freshwater) turtle in California and is found in a wide variety of aquatic habitats including streams, lakes and ponds. Western pond turtles are known to live over 42 years in the wild, although most individuals have a much shorter life span of around 20-25 years.

Western pond turtles often move about from pool to pool in stream situations, sometimes on a daily basis during seasons of activity. The turtles also have the ability to move several miles if their aquatic habitat dries up, and can tolerate at least seven days without water, or seven days of being immersed in full strength salt water. Western pond turtles are eaten by a wide variety of natural predators during their life span. Known predators include: bald eagles, ospreys, great blue herons, gulls, river otters, mink, raccoons, gray foxes, coyotes, black bears, introduced bullfrogs, and introduced largemouth bass. Humans, especially near urban areas, also illegally collect juvenile and adult turtles.

Occurrence on Site: Although western pond turtles have not been observed by project biologists within the study area, and have not been noted within the study area by CNDDB, they are known to occur in the region. There are two recorded sightings of western pond turtles within three miles of the study area. This species is not affected by predacious fish and chemicals used to treat water in the same way as other reptiles and amphibians are. Therefore, western pond turtles could potentially be found within any of the manmade waterways associated with the project from time to time.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia)* is considered a California Species of Special Concern. This decision was based on the fact that the burrowing owl's population levels were decreasing due to habitat destruction, roadside nesting (vulnerability to human interference) and indirectly, ground squirrel poisoning.

The burrowing owl is a small, long-legged bird that averages a height of 9.5 inches, has an average wingspan of 23 inches, and weighs an average of 5.25 ounces. Burrowing owls are unique, in that they are the only owl that regularly lives and breeds in underground nests. In California, these birds typically occur in the Central and Imperial Valleys, primarily utilizing ground squirrel burrow complexes (or the burrows of other animals, e.g., badgers, prairie dogs and kangaroo rats) found in grasslands, open shrub lands, deserts, and to a lesser extent, grazing and agricultural lands. Burrowing owls in this region are typically found in lower elevations, and have strong site fidelity. Pairs have been known to return to the same area year after year, and some pairs are known to utilize

the same burrow as the previous year.

Burrowing owls feed on various small mammals including deer mice, voles, and rats. They also prey on various invertebrates including crickets, beetles, grasshoppers, spiders, centipedes, scorpions and crayfish. The breeding season for the burrowing owl runs from February to August, with a peak between April and July.

Burrowing owl numbers have been in decline in California over the past 30 to 40 years. The decline in numbers is due mainly to habitat destruction by way of development and agricultural practices. Burrowing owls are subject to predation by mammals (e.g., feral cats, bobcats, fox and coyotes). They are also susceptible to anthropogenic effects such as collisions with automobiles, and destruction or disruption of their nests, especially during the breeding season. The burrowing owl may also be affected by ground squirrel eradication efforts.

Occurrence on Site: Evidence of burrowing owl use (i.e., white wash, feathers, and pellets) was observed in one burrow of suitable size for the species (greater than four inches in diameter) within the potential impact area. The burrow is located at Pond 6 northwest of RM I, and appears to be an abandoned badger burrow. It is likely a single owl used the site for several days to weeks. It is not likely that a bonded pair occupied the site, as there was only one burrow and nesting owls generally use burrow complexes. No other burrows of suitable size were observed within the potential impact area or the greater study area. There is a general lack of ground squirrels throughout the Ridgemark area, a species that often provides suitable nesting burrows for the owls.

San Joaquin Kit Fox

By the time the U.S. Fish and Wildlife Service listed the San Joaquin kit fox (*Vulpes macrotis mutica)* as an endangered species under the authority of the Federal Endangered Species Act on March 11, 1967, the kit fox had been extirpated from much of its historic range.[47] In 1998, the USFWS adopted a final recovery plan for the San Joaquin kit fox, and on June 27, 1971, the State of California listed the kit fox as a threatened species. Critical habitat has yet to be established for the San Joaquin kit fox.

The San Joaquin kit fox, the smallest North American member of the dog family, historically occupied the dry plains of the San Joaquin Valley from San Joaquin County to southern Kern County. Local surveys, research projects, and incidental sightings indicate that kit foxes currently occupy available habitat on the San Joaquin Valley floor and in the surrounding foothills.

Kit foxes prefer habitats of open or low vegetation with loose soils. In the northern portion of their range, they occupy grazed grasslands and, to a lesser extent, valley oak woodlands. In the southern and central portion of the Central Valley, kit foxes are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland. Kit foxes may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields. Kit fox diets vary geographically, seasonally, and annually. In most of their range, which includes lands around the study area, known prey includes mice, insects, California ground squirrels, black-tailed hares, desert cottontails, and ground-nesting birds.

The kit fox requires underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions. They usually occupy burrows excavated by small mammals, such as ground squirrels. Denning habitat consists of ground squirrel complexes in which

[47] U.S. Fish and Wildlife Service, http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=A006.

some burrows have been enlarged to four to ten inches in diameter for the length of a human arm (approximately two feet).

***Occurrence on Site**:* The San Joaquin kit fox is not reasonably expected to occur within the greater study area or the potential impact area. According to the CNDDB, there have been a total of eight direct and indirect sightings within ten miles of the site since 1971. The nearest observation was documented approximately one-half mile north of the project site in 1971. The most recent documented occurrence of this species took place in 1992, approximately five miles northwest of the site. Numerous regional surveys conducted before and after the 1992 occurrence have failed to detect this species.

Neither the greater study area nor the potential impact area support suitable denning habitat for the kit fox; and due to the developed nature of the study area, foraging habitat for kit fox is minimal at best. The site is isolated from any extant subpopulations of kit fox, as the nearest known population occurs in Panoche Valley, some 30 air miles southeast of the study area. Based on the site's location and the distribution of kit fox occurrences in its vicinity, the site is not essential to the regional movement of kit fox populations. For all intents and purposes, the site would tend to function more as a dispersal sink (i.e., a habitat in which a population is expected to decline to extinction due to sub-optimal foraging and breeding conditions) than as an area that would facilitate movements or aid in successful breeding.

The entire study area and potential impact area are developed with roads, residential development and a golf course. These are land uses that are not generally suitable for the San Joaquin kit fox; however, rangelands can provide marginal foraging habitat for this species. The study area itself does not support this type of habitat; however, this type of habitat occurs adjacent to it. The likelihood that a kit fox would travel through low-quality habitat to utilize the low-quality, developed areas of the study area is low. Any occurrence of kit fox is this area would be of an incidental nature.

The only mammal burrow observed within the study area that would be potentially suitable for a kit fox was the burrow being utilized by the burrowing owl. Ground squirrels, which often provide denning opportunities for the kit fox, are absent from the study area. Therefore, the study area and potential impact area do not support suitable denning habitat for the kit fox. For all these reasons, the kit fox is considered absent from the site.

American Badger

The American badger (*Taxidea taxus*) is listed as a California Species of Special Concern. The decision to list the badger was based on decreasing population levels due to habitat conversion from open grasslands to agriculture and urban uses, trapping for fur, and direct and indirect poisoning from eating poisoned rodents – their main prey base.

Badgers are generally found through out California's arid grasslands and scrublands with friable soils from sea level to 12,000 feet, except the northern North Coast area. Badgers are primarily nocturnal and rarely seen during the day. Badgers feed on a variety of small- to medium-size mammals including deer mice, voles, and rats; in addition to roots. Badgers will also eat reptiles and their eggs as well as birds and their eggs. Their main food source, however, is ground squirrels and pocket gophers. They are opportunistic foragers and their food sources shift seasonally with availability. Badgers may roam over 50 miles to find their own home range after maturity.

Badgers often hunt for prey by digging into fossorial mammal burrows. Coyotes have been known to follow badgers to take advantage of an easy meal as rodents are flushed from their burrows. Badgers

may enlarge hunting burrows for sleeping and protection from weather. During the summer months, badgers dig new resting burrows nearly every day; these burrows are usually only a few feet deep. Their natal dens are more permanent and may be as much as 30 feet long and 10 feet deep.

Badgers are ferocious animals and have few natural predators, though they can be preyed upon by bear, bobcat, and cougar. As discussed above, the main threat to badgers comes from human-caused effects.

Occurrence Onsite: Evidence of badger use was observed at the foot of a hill on the eastern side of Pond 6 (i.e., a burrow wider than tall and tracks). No other such burrows were observed within the potential impact area or the greater study area during the March and April 2008 field surveys. It is likely a badger used this area as a day resting spot and then moved on to off site portions of its home range.

3.4.3 Biotic Resources Regulated by Local, State, and/or Federal Jurisdictions

3.4.3.1 *Wetlands and Other "Jurisdictional Waters"*

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the California Regional Water Quality Control Board (RWQCB), as discussed above.

The only aquatic features occurring within the potential impact areas are the Ridgemark development manmade water treatment/evaporation and mixing ponds. Although one of the ponds receives water from the Delta (CVP Water), none of the ponds discharge water to tributaries to "Waters of the U.S." or "Waters of the State." Because these manmade ponds are isolated from known "Waters of the U.S." and their tributaries, they do not replace the functions and values of historic waters, and do not meet the USACE's technical criteria for jurisdictional wetlands. Therefore, it is unlikely the USACE would claim jurisdiction over these features. Likewise, the CDFG and RWQCB would be unlikely to regulate these features. A "Waters of the United States" analysis has not been completed for the manmade ponds within the potential impact areas.

Although jurisdictional waters are presumed to be absent on the site, the applicable agencies would make the final determination and could claim jurisdiction over any aquatic resources they determine to be under their jurisdiction.

3.4.3.2 *Habitat Conservation Plans/Natural Community Conservation Plans*

No habitat conservation plans (HCP) or natural community conservation plans (NCCP) or other are in effect for the project area. While a draft HCP had been underway in this region for some time, this effort is no longer moving forward.

3.4.4 Biological Resources Impacts

3.4.4.1 *Thresholds of Significance*

For the purposes of this project, a biological resources impact is considered significant if the project would have any of the following effects:

- A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS;
- A substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites, or
- Conflict with any local ordinances protecting biological resources, such as a tree preservation policy or ordinance.

3.4.4.2 *Biological Resources Impacts of Phase 1 Improvements*

Impacts to Special-Status Plants

Nineteen special-status vascular plant species are known to occur in the general project vicinity. All of these species are absent from the study area as suitable habitat for them is completely lacking, as the study area contains a gated, residential development and a golf course, and also because soils, wetlands, vernal pools and other habitat factors required to support these plant species are absent. Regional populations of these species would not be affected by project implementation. Therefore, state and federal laws protecting special-status plants would not be applicable to this project.

Impact BIO-1: Implementation of the proposed Phase 1 improvements would not result in impacts to special-status plants. **[Less than Significant Impact]**

Impacts to Special-Status Animals

Twenty-four special status animal species occur, or once occurred, in the region of the study area (Appendix D). Of those 24 species, 10 would be absent or unlikely to occur on the site due to unsuitable habitat conditions. These include steelhead, coast range newt, foothill yellow-legged frog, San Joaquin coachwhip, western yellow-billed cuckoo, tricolored blackbird, bank swallow, least Bell's vireo, yellow-breasted chat, San Joaquin kit fox and ringtail. Implementation of the proposed project would have no effect on these species because they are absent or unlikely to occur as the potential impact area does not support suitable habitat.

Species that might rarely or occasionally occur on the site as transients, occasional foragers, or winter migrants include northern harrier, merlin, and western mastiff bat. The site does not provide regionally important foraging habitat and no breeding habitat for these species. Migrant and transient species pass through or over many types of habitats en route to breeding or wintering habitat.

Implementation of the proposed project would not affect the marginal foraging habitat within the potential impact area or greater study area for these species, and therefore, project implementation would have no impact on these species.

Special status animal species that are known to occur within the greater study area, but not within the potential project impact area, include the California tiger salamander, California red-legged frog, and western spadefoot. Impacts to these aquatic species are discussed below.

Impact BIO-2: Implementation of the proposed Phase 1 improvements would not result in impacts to special-status animals (apart from California tiger salamander, California red-legged frog, and western spadefoot, as discussed in following sections). **[Less than Significant Impact]**

Impacts to California Tiger Salamander, California Red-legged Frog, Western Spadefoot, and Their Habitat

As noted previously, the California tiger salamander, California red-legged frog and western spadefoot are presumed present in the mitigation pond at the terminus of Paullus Drive. Since the mitigation pond is outside of the proposed area of work, and the mixing ponds within the potential impact area are unsuitable habitat for these species, project implementation is not expected to negatively impact these species.

None of the ponds (i.e., mixing ponds or wastewater ponds) within the potential impact area would support California red-legged frogs due mainly to chemicals used to treat the water, and the inhospitable matrix that the animals would have to navigate to reach one of the mixing ponds found within the golf course. The Ridgemark development is outside the critical habitat for California red-legged frog proposed under new federal rules.

In addition, summer hibernation of the California tiger salamanders, California red-legged frogs, and western spadefoot is not expected to take place within the proposed impact areas, as the work will be taking place in high traffic areas that are generally inaccessible to these species. Furthermore, any potential indirect construction impacts related to the project will be temporary in nature. If these species are encountered outside of likely areas, however, any loss of individuals would be significant.

Impact BIO-3: Implementation of the proposed Phase 1 improvements could result in impacts to California tiger salamander, California red-legged frog, and western spadefoot during construction. **[Significant Impact]**

Impacts to Western Pond Turtle and Their Habitat

No western pond turtles have been observed within the mixing or wastewater treatment ponds within the potential impact areas of the proposed project, nor anywhere else within the Ridgemark area. Therefore, impacts to individual western pond turtles or their habitat are not expected to occur from project implementation. Nonetheless, construction activities that caused injury or death to an errant pond turtle would be considered a significant impact.

Impact BIO-4: Implementation of the proposed Phase 1 improvements could result in impacts to western pond turtles during construction. **[Significant Impact]**

Impacts to Burrowing Owl

Only one burrow of suitable size for burrowing owls was detected within the study area during the March and April 2008 site visits. This was an abandoned badger burrow located adjacent to Pond 6, and it was occupied by a burrowing owl (evidenced by white wash, pellets and feathers). Implementation of the proposed project may result in a temporary loss of marginal habitat for the burrowing owl. Construction activities that adversely affect the nesting success of or result in mortality of individual owls would constitute a violation of state and federal laws and would be considered a significant impact.

Impact BIO-5: Implementation of the proposed Phase 1 improvements could result in impacts to individual burrowing owls during construction. **[Significant Impact]**

Impacts to San Joaquin Kit Fox

The proposed project area consists of a residential development (with associated roadways), a golf course, treatment ponds, and a small amount of ruderal grassland. No ground squirrel burrows were observed within the area during the March and April 2008 site visits. Therefore, suitable burrows for the San Joaquin kit fox are currently absent from the potential impact areas. Although protocol-level surveys, including 100 percent visual coverage, of the site were not conducted for this species, there is sufficient evidence to determine that typical denning habitat for the fox is absent from the study area.

Project implementation would likely result in a less than significant loss of habitat for the San Joaquin kit fox. However, it is possible, though highly unlikely, that an individual kit fox could move onto the site incidentally prior to construction. In such a case, construction-related activities could result in harm or death to individual kit fox, should they occur on the site. This would be considered a significant adverse impact.

Impact BIO-6: Implementation of the proposed Phase 1 improvements could result in impacts to San Joaquin kit foxes during construction. **[Significant Impact]**

Impacts to American Badger

Impacts to the American badger would be similar to those for the burrowing owl. There was only one badger burrow found within the study area, and since badgers dig new burrows nearly daily throughout the summer, badgers may not visit the area again in the near future. The burrow was found in the area of Pond 6, which may be used as a borrow pit for the project. Therefore, it is possible that project implementation could have a temporary negative affect on an American badger or its habitat during construction.

Impact BIO-7: Implementation of the proposed Phase 1 improvements could result in temporary impacts to American badgers during construction. **[Significant Impact]**

Impacts to Nesting Raptors

The project site contains several large landscape trees that could be impacted by project completion, particularly on the hillside below RM I. Nesting raptors (e.g., barn owls, red-shouldered hawks, and

Cooper's hawks) may be present in the trees on the site at the time of project construction. Construction during the nesting season could disturb or destroy occupied nests, which would result in the loss of eggs or young birds, a violation of the MBTA. The value of the breeding habitat is not high due to the project's location and the urban development on and adjacent to the site. Therefore, the loss of these trees would not constitute a significant loss of breeding habitat for raptor species in the area. The loss of reproductive effort for individual birds would, however, be a significant impact.

Impact BIO-8: Implementation of the proposed Phase 1 improvements could result in impacts to nesting raptors during construction. **[Significant Impact]**

Impacts to Nesting Waterfowl

A variety of waterfowl utilize the manmade water features of the site, particularly at RM II. Species observed at the ponds included Canada goose, mallard, ruddy duck, lesser scaup, bufflehead, American coot, and black-necked stilt. It is likely that the Canada goose and mallard breed within the study area, and it is possible that black-necked stilts could breed on site. The draining of the manmade ponds will not result in a significant loss of nesting habitat for water birds regionally, given the relative small size and artificial nature of this feature, and the fact that this region is not considered an important breeding area for water birds in general.

However, construction activities that adversely affect nesting success of waterfowl or result in mortality of individual birds (e.g., dewatering during the while there are fledglings) would constitute a violation of state and federal laws, and would be considered a significant impact.

Impact BIO-9: Implementation of the proposed Phase 1 improvements could result in impacts to nesting waterfowl during dewatering and filling ponds at RM II. **[Significant Impact]**

Loss of Habitat for Native Wildlife

Substantial loss of habitat for native wildlife is not expected to occur as a result of project implementation, which will occur mainly at existing wastewater facilities (i.e., RM I, RM II, Pond 6, and mixing ponds) and within roadways. Any impacts are expected to be temporary. Therefore, the loss of habitat for native wildlife resulting from the proposed project would be a less than significant impact.

Impact BIO-10: Implementation of the proposed Phase 1 improvements would not result in a substantial loss of habitat for native wildlife. **[Less than Significant Impact]**

Interference with the Movement of Native Wildlife

The study and potential impact areas occur within a gated, residential development and golf course. Therefore, these areas do not provide important movement corridors for wildlife, though some species do move through the site, and are expected to continue to do so after project implementation. Therefore, the project would result in a less than significant impact on the movements of native wildlife.

Impact BIO-11: Implementation of the proposed Phase 1 improvements would not result in a significant interference with the movement of native wildlife. **[Less than Significant Impact]**

Disturbance to Waters of the United States or Riparian Habitats

No wetlands or other jurisdictional waters occur within the potential Phase 1 impact area. Therefore, state and federal regulations protecting jurisdictional waters would not be applicable to the project. The project would also have no effect on riparian habitats or other sensitive natural communities, as these habitats do not occur within the potential impact area.

Impact BIO-12: Implementation of the proposed Phase 1 improvements would not result in significant impacts to riparian habitats or other sensitive natural communities. **[Less than Significant Impact]**

Degradation of Water Quality in Seasonal Drainages, Stock Ponds, and Downstream Waters

Extensive grading often leaves the soils of construction zones barren of vegetation and, therefore, vulnerable to erosion. Eroded soil can be carried as sediment in seasonal creeks to be deposited in creek beds and adjacent wetlands. The site itself and the surrounding areas are comprised of fairly level terrain, with the exception of a portion of Ruderal Grassland I near RM I and a portion of Ruderal Grassland II below Pond 6 (Figure 17). The hill associated with Ruderal Grassland I does not drain to any downstream waters. The hill associated with Ruderal Grassland II below Pond 6 that may be graded for a temporary access road drains to the developed area near Labor Camp Road. Therefore, the potential for erosion and the degradation of water quality in local creeks is negligible.

Furthermore, the District is expected to comply with the provisions of a County grading permit, including standard erosion control measures that employ best management practices (BMPs). Compliance with the above permit(s) would not result in impacts to water quality in seasonal creeks, reservoirs, and downstream waters from the proposed project, and would not result in the deposition of pollutants and sediments in sensitive riparian and wetland habitats.

Impact BIO-13: Implementation of the proposed Phase 1 improvements would not result in significant water quality impacts to seasonal drainages, stock ponds, and downstream waters. **[Less than Significant Impact]**

Impacts to Trees

A formal tree inventory was not conducted onsite, though several small, non-native trees and bushes may be removed from Ruderal Grassland I to accommodate a new pipeline and temporary access route to RM I. No other trees are expected to be removed as a result of project implementation. However, there are landscape trees along the roadways and throughout the golf course, and it is possible that several trees may have to be removed or impacted due to project implementation. The project proposes to avoid removal of as many trees as possible during project implementation. The loss of several (less than 12) non-native trees would be considered a less than significant impact given the abundance of landscape trees associated with the region of the project.

Impact BIO-14: Implementation of the proposed Phase 1 improvements would not result in significant impacts to trees. **[Less than Significant Impact]**

3.4.4.3 *Biological Resources Impacts of Phase 2 Improvements*

Phase 2 improvements are likely to take place within or near the Ridgemark residential development, although the exact project location has not been determined, and therefore the impacts of these improvements can only be addressed at a program-level. Future improvements under Phase 2, such as water treatment facilities and pipelines, would have generally similar environmental effects to Phase 1 improvements. Since specific locations and the physical extent of potable water improvements are not known, the impacts of Phase 2 of the project cannot be addressed with certainty. These impacts could include loss of special-status species by direct impacts or through loss of habitat, impacts to riparian areas and drainages, and loss of wetlands.

These possible impacts from Phase 2 of the project could be mitigated in a similar fashion to the impacts from Phase 1. For example, preconstruction surveys for special status species, such as burrowing owls, California tiger salamander, California red-legged frogs, and pond turtles could be employed to avoid impacts to individuals during construction. An exception to this is the possible use of evaporation ponds by Phase 2 of the project, which could impact larger areas of habitat and could require additional mitigation. Other project activities, however, such as wells and pipelines, would likely have similar biological resources impacts to Phase 1, and could employ equivalent mitigation. Before implementation of these mitigation measures, however, impacts to biological resources from Phase 2 of the project would be significant.

Impact BIO-15: Implementation of the proposed Phase 2 improvements could result in impacts to sensitive habitats or special-status species. **[Significant Impact]**

3.4.5 Mitigation and Avoidance Measures

3.4.5.1 *Phase 1 Project-Level Mitigation Measures*

Mitigation and Avoidance Measures for Impacts to California Tiger Salamander, California Red-legged Frog, and Western Spadefoot

Implementation of the proposed Phase 1 improvements could result in impacts to California tiger salamander, California red-legged frog, and western spadefoot during construction. The following mitigation measures would reduce **Impact BIO-3** to a less than significant level, and are designed to avoid and minimize impacts where possible.

MM BIO-3.1: **Avoidance:** Impacts to special status aquatic species and their habitat will be avoided to the maximum extent practicable. The proposed project will not undertake any construction within approximately 0.25 miles of the California tiger salamander mitigation pond on the Ridgemark golf course near the terminus of Paullus Drive. As such, the presumed breeding habitat for special status aquatic species will be avoided by the project.

MM BIO-3.2: **Minimization:** Implementation of the following measures will be taken during project implementation to avoid potential take of individual special status aquatic species.

- Exclusion fencing (e.g., silt fencing) shall be erected around construction zones to minimize the potential of individual California tiger salamander, California red-legged frog, and western Spadefoot to disperse into work areas during construction and maintained and

remain in place for the duration of project implementation. Any aquatic species detected during these procedures will be moved to suitable habitat by a biologist possessing USFWS authorization to handle these species, and the agency would be notified.

- A qualified onsite monitor shall be present during the initial site grading within 0.25 miles of the breeding pond near the terminus of Paullus Drive. The monitor would only need to monitor the site during the rough grading activities. Monitoring could cease once the build-out site has been completely denuded of habitats.

Mitigation and Avoidance Measures for Impacts to Western Pond Turtle and Their Habitat

Implementation of the proposed Phase 1 improvements could result in impacts to western pond turtles during construction. Implementation of the following mitigation measures would reduce **Impact BIO-4** a less than significant level, should the turtles be found within project activity areas.

MM BIO-4.1: **Minimization:** The project shall implement the following measures to protect western pond turtles:

- Species-specific pre-construction surveys will be conducted 48-hours prior to initiation of construction activities within the RM II treatment and golf course mixing and irrigation ponds, or any of the manmade water features on site

- The placement of fine mesh black fencing between the construction area and the edge of the ponds, where possible, to keep turtles away from heavy equipment;

- The training of the construction crew (e.g., tailgate session) by a qualified biologist to ensure that they are not only aware of the protective measures they are to employ in the unlikely event a turtle is found onsite, but also understand the purpose of such measures;

- Should a turtle be found during the pre-construction surveys, a qualified biological monitor will be present during construction when work is conducted within close proximity of the pond(s) to ensure that the project does not inadvertently injure or kill an individual western pond turtle.

- Should a turtle be found by the construction crew at any time during construction activities, a qualified biologist shall be contacted immediately. The biologist will move the turtle to a safe location and submit a sighting occurrence to the CDFG.

Mitigation and Avoidance Measures for Impacts to Burrowing Owls

Implementation of the proposed Phase 1 improvements could result in impacts to burrowing owls. The following mitigation and avoidance measures would reduce **Impact BIO-5** a less than significant level.

Because potential impacts to burrowing owl habitat from pipeline installation (and possible excavation for soil borrow) will be temporary, no offsite mitigation is warranted for loss of habitat for the burrowing owl.

MM BIO-5.1: A qualified biologist shall conduct pre-construction surveys for burrowing owls within 250 feet of work areas within 30 days of the onset of ground disturbance in all areas of the project that have the potential to support suitable habitat for the burrowing owl (e.g., pipeline construction through ruderal grasslands and work around Pond 6). These surveys will be conducted in a manner consistent with accepted burrowing owl survey protocols. If pre-construction surveys determine that burrowing owls occupy the site during the non-breeding season (September 1 through January 31), then a passive relocation effort (i.e., blocking burrows with one-way doors and leaving them in place for a minimum of three days) may be necessary to ensure that the owls are not harmed or killed during construction . Once it has been determined that owls have vacated the site, the burrows can be collapsed, and ground disturbance can proceed.

MM BIO-5.2: If burrowing owls are detected on the site or immediately adjacent lands (i.e., within 250 feet of the site boundary) during the breeding season (February 1 through August 31), a construction-free buffer of 250 feet shall be established around all active owl burrows. The buffer areas will be enclosed with temporary fencing, and construction equipment and workers will not enter the enclosed setback areas. Buffers will remain in place for the duration of the breeding season or until it has been determined by a qualified biologist that chicks have fledged and are independent of their parents. After the breeding season, passive relocation of any remaining owls may take place as described above.

Mitigation and Avoidance Measures for Impacts to San Joaquin Kit Fox

Implementation of the proposed Phase 1 improvements could result in impacts to San Joaquin kit fox during construction. The following mitigation and avoidance measures would reduce **Impact BIO-6** a less than significant level.

In the highly unlikely event a San Joaquin kit fox were to wander onto the site at the time of project construction, the District shall implement the protection measures outlined in the "U.S. Fish and Wildlife Service standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance," (as detailed in MM BIO-15.7), when work will occur within or adjacent to ruderal grasslands, or other areas that may support suitable denning habitat, such as the areas around RM I and Pond 6. The greater study area and potential impact areas do not currently support such denning habitat. While these recommendations were developed by the USFWS Sacramento office, they would be applicable to this project site as well.

MM BIO-6.1: Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any project activity likely to impact the San Joaquin kit fox. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on the project site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the area of

work, the USFWS shall be contacted immediately to determine the best course of action. If no kit fox activity is detected, a written report shall be submitted to the USFWS within five days after completion of the surveys.

MM BIO-6.2: Permanent and temporary construction activities and other types of project-related activities should be carried out in a manner that minimizes disturbance to kit foxes, should their presence be detected on the site during pre-construction surveys. Minimization measures include, but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash.

MM BIO-6.3: The Ventura field office of the USFWS and the Fresno field office of the CDFG will be notified in writing within three working days in case of the accidental death or injury to a San Joaquin kit fox during project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.

Mitigation and Avoidance Measures for Impacts to American Badger

Implementation of the proposed Phase 1 improvements could result in impacts to American badger during construction. The following mitigation and avoidance measures would reduce **Impact BIO-7** a less than significant level.

MM BIO-7.1: Pre-construction surveys, like those conducted for raptors and specifically for burrowing owls, will also be used to determine the presence or absence of badgers within the area of Pond 6, RM I, and ruderal grasslands located within the potential impact area. In the unlikely event that an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a construction-free buffer of up to 300 feet or a suitable distance specified by the resource agencies (i.e., CDFG) will be established around the den.

Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor will be present onsite during construction activities to ensure the buffer is adequate to avoid direct impact to individuals or nest abandonment. The onsite monitor will be necessary until it is determined that young are of an independent age and construction activities would not harm individual badgers. Once it has been determined that badgers have vacated the site, the burrows could be collapsed or excavated, and ground disturbance could proceed. Because potential impacts to badger habitat would be temporary in nature, no offsite mitigation is warranted for loss of habitat for the badger.

Mitigation and Avoidance Measures for Impacts to Nesting Raptors

Implementation of the proposed Phase 1 improvements could result in impacts to nesting raptors during construction. The following mitigation and avoidance measures would reduce **Impact BIO-8** a less than significant level.

MM BIO-8.1: A qualified biologist shall conduct a pre-construction survey for tree- and ground-nesting raptors throughout the site and in all trees within 250 feet of the site no more than 30 days prior to the onset of ground disturbance, if such disturbance will occur during the breeding season (February 1 through August 31). Pre-construction surveys will be used to determine the presence or absence of nesting raptors. If nesting raptors are detected during the survey within 250 feet of proposed project-related development activities, a suitable construction-free buffer should be established around all active nests. The precise dimension of the buffer (up to 250 feet) would be determined at that time and may vary depending on location and species. Buffers will remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary for most nesting raptors, including all tree-nesting raptors, as they are expected to abandon their roosts during construction.

Mitigation and Avoidance Measures for Impacts to Nesting Waterfowl

Implementation of the proposed Phase 1 improvements could result in impacts to nesting waterfowl during construction. The following mitigation and avoidance measures would reduce **Impact BIO-9** a less than significant level.

MM BIO-9.1: A qualified biologist shall conduct a pre-construction survey for nesting waterfowl within 100 feet of manmade water features no more than 30 days prior to the onset of ground disturbance, if such disturbance will occur during the breeding season (generally March 1 through June 30). Pre-construction surveys should be used to determine the presence or absence of nesting waterfowl. If nesting of such birds is detected during the survey within 100 feet of proposed project-related activities, a suitable construction-free buffer should be established around all active nests. The precise dimension of the buffer (up to 100 feet) would be determined at that time and may vary depending on location and species. Buffers will remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary for waterfowl as they are expected to abandon their roosts during construction.

3.4.5.2 *Phase 2 Program-Level Mitigation Measures*

Potable water improvements in San Benito County were previously addressed in the 2004 *Groundwater Management Plan Update* at a program-level. The program-level mitigation measures for possible impacts to biological resources in the Plan would apply to the improvements in Phase 2 of the project.

As previously discussed, Phase 2 improvements are anticipated to occur over a period of up to 30 years and site specific environmental review and appropriate mitigation measures will be required prior to approval or implementation. For these reasons, specific project-level impacts and mitigation measures are not discussed further. Applicable program-level mitigation measures are incorporated in the SSCWD project and listed below.

Construction Impacts to Wetland Habitats

MM BIO-15.1: Avoidance and Minimization

New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to wetland habitats. If total avoidance is not possible, then wetland replacement will be completed.

MM BIO-15.2: Wetland Replacement

The wetland habitat that will be lost under any new projects would be functionally replaced in conformance with mitigation requirements of the responsible regulatory agencies. In-kind (the same wetland type) and on-site replacement of lost wetland habitats will be done where possible.

The determination of wetland impacts and the subsequent location and design of potential mitigation sites would be determined by qualified biologists in coordination with resource agency personnel. Mitigation and habitat restoration plans would provide for the following:

a. Calculation and replacement of lost acreage and functions of wetland habitat

b. Location of restoration opportunities, complete with an analysis of the technical approach to create high quality wetlands.

c. Detailed plans will be prepared for wetland mitigation construction that includes excavation elevations, location of hydrologic connections, planting plans and soil amendments, if necessary. Maintenance and monitoring plans are to be prepared in consultation with a qualified habitat restoration specialist. Any mitigation wetlands will be monitored for a period of five years, during which the site will achieve the target jurisdictional acreage by Year 5. Specific performance criteria will be determined and monitored for site success. Monitoring reports will be provided annually to the appropriate resource agencies.

d. Permits. Prior to construction of any project element that may impact wetland habitats, the project proponent will apply for a Section 404 permit and Water Quality Certification from the U.S. Army Corps of Engineers and the Regional Water Quality Control Board. The project proponent will comply with the conditions of required permits.

MM BIO-15.3: Encroachment Into Riparian Buffer Zones

If a new project element would be located within 100 feet of the edge of a riparian corridor, and has encroachment impacts, mitigation in the form of

habitat replacement or a functional equivalent will be completed. Mitigation ratios will be determined by a qualified biologist and will be based upon the type of development proposed and the quality and extent of indirect impacts to the riparian habitat.

MM BIO-15.4: Implement Hazardous Materials Spill Prevention and Best Management Practices

A hazardous material spill prevention plan will be developed and implemented for any work in or adjacent to the Pajaro River or its tributaries (including the San Benito River). Hazardous materials will be stored in secured structures with secondary spill containment features. Refueling of construction equipment and vehicles will not occur within 300 feet of any water body or anywhere that spilled fuel could drain to a water body. The contractors will check and maintain equipment and vehicles daily to prevent leaks of fuels, lubricants, or other fluids. The implementation of Best Management Practices (see Implementation of Best Management Practices for Work in Stream Channels) will also be required.

Construction Impacts to Red-legged Frogs and Other Aquatic Species

MM BIO-15.5: Avoidance

To the greatest extent feasible, construction of project elements will be planned to avoid habitat for aquatic species such as the red-legged frog. If construction will occur adjacent to habitat for aquatic species, impacts will be avoided through the following measures.

a. Prior to any construction activities, the boundaries of construction areas will be clearly delineated with orange plastic construction fencing to prevent workers or equipment from inadvertently straying from the construction area. All construction personnel, equipment, and vehicle movement shall be confined to designated construction areas and connecting roadways. Movement of construction and personal vehicles shall be prohibited outside designated construction areas or off established roadways.

b. Prior to the onset of any ground disturbing activities, exclusion fencing will be established around areas of potentially occupied habitat, as determined by a qualified biologist. Exclusion fencing will consist of silt-fencing or similar material at least 36 inches in height that is buried six inches in the ground to prevent incursion under the fence. Exclusion fencing may be installed at the base of the construction fencing described in “a” above. This fence will be surveyed each morning before construction, to verify that no frogs have entered the construction site.

c. Before any construction activities begin, a U.S. Fish and Wildlife Service approved biologist will conduct a training session with construction personnel to describe the California red-legged frog and its habitat, the specific measures being implemented to minimize effects to the species, and the boundaries of the construction area.

d. All food-related trash items will be enclosed in sealed containers and removed daily from a project site to discourage the concentration of potential predators in habitat potentially occupied by California red-legged frogs.

MM BIO-15.6: Consultation with the USFWS

Take of California red-legged frogs is only permitted through consultation with the USFWS. Some project elements may involve a federal nexus and, therefore, Section 7 consultation will be required. Other project elements will lack a federal nexus, however, and take will only be authorized upon approval of a suitable Habitat Conservation Plan (HCP). The HCP will provide specific mitigation measures appropriate to the scale of take. Depending on the construction activities, these mitigation measures could range from presence of an on-site monitor to extensive habitat restoration. An HCP would be completed though consultation with the USFWS.

Construction Impacts to San Joaquin Kit Fox

MM BIO-15.7: Take Avoidance

Standard take-avoidance measures listed on the following pages will be implemented to avoid direct take of any individual kit fox that may wander onto the project site. To avoid direct take of any individual kit fox that may be present on a project site, preactivity surveys will be conducted if any habitat feature with the potential to be used by kit foxes (i.e. burrows, irrigation pipes, debris piles) is created or placed on site and is to be subsequently disturbed or moved. If kit foxes are detected, work in that area must cease and consultation with the USFWS is necessary to determine the appropriate course of action.

STANDARD RECOMMENDATIONS PUT FORTH BY UNITED STATES FISH AND WILDLIFE SERVICE FOR THE PROTECTION OF SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE. 28 JUNE 1999.

Construction and Operational Requirements

Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbances should be minimized. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be

prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. To prevent harassment, morality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphate should be used because of proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has expected impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; and explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject of "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.

12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff as 1416-9th Street, Sacramento, California, (916) 654-4262.

Potential Construction Impacts to Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp are reported to occur in San Benito County. Any construction that would directly impact vernal marsh habitat (including construction during the dry season) could negatively

impact this species.

MM BIO-15.8: **Avoid Habitat**
New projects should be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to vernal marsh habitat. If construction is planned adjacent to vernal marsh habitat, prior to any construction activities, the boundaries of construction areas will be clearly delineated with orange plastic construction fencing to prevent workers or equipment from inadvertently straying from the construction area.

MM BIO-15.9: **Protect Water Quality.**
Refer to Implement Hazardous Materials Spill Prevention, above.

Construction Impacts to California Tiger Salamanders and Their Habitat

California tiger salamanders could occur in aquatic habitats, and in grassland and oak woodland habitats near aquatic habitat (including vernal marshes) in San Benito County. Construction activities in these habitats could impact California tiger salamanders. The following mitigation measures will reduce impacts to California tiger salamanders and their habitat to less-than-significant levels.

MM BIO-15.10: **Determine Presence/Absence**
Prior to construction, protocol-level surveys for California tiger salamanders will be conducted by a qualified biologist in any potential habitat for the species that could be affected by the Management Plan.

MM BIO-15.11: **Avoidance**
Project elements that will impact California tiger salamanders or their habitat will be redesigned to avoid all impacts. If avoidance is not possible, then Compensation for Habitat Loss and consultation with CDFG will be necessary.

MM BIO-15.12: **Compensation for Habitat Loss**
Replacement of aquatic, wetland, and/or upland habitat that provides breeding or aestivation habitat for California tiger salamanders will provided commensurate with project impacts. Restoration of areas of temporary impacts will replace amphibian habitat impacted temporarily. Mitigation ratios to compensate for permanent impacts to aquatic, wetland and upland habitat must provide more than the existing breeding, foraging and aestivation habitat at the impact site and will be approved by CDFG.

Construction Impacts to Burrowing Owls and Burrowing Owl Habitat

Raptors, including owls, and their nests are protected under both federal and state laws, including the Migratory Bird Treaty Act and California Fish and Game Code section 3503.5. Burrowing Owls could occur in grassland habitat and margins of agricultural areas where ground squirrels are present. Construction-related disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by CDFG.

For projects in grassland habitat that could result in permanently displacement of burrowing owls

(i.e., installation of evaporation ponds, constructed wetlands, or percolation ponds), protocol burrowing owl surveys will be conducted between April 15 and July 25. If burrowing owls are observed during surveys, the extent of burrowing owl habitat on the site will be delineated by a qualified ornithologist. Avoidance and/or habitat mitigation measures will be incorporated in future projects, as appropriate.

MM BIO-15.13: Avoidance

Preconstruction surveys for Burrowing Owls will be completed in conformance with CDFG protocols, no more than 30 days prior to the start of construction in grassland habitat and margins of agricultural areas where habitat for Burrowing Owls is present. If no Burrowing Owls were located during these surveys, no additional action would be warranted. However, if breeding or resident owls were located on, or immediately adjacent to, the site, the project could be reconfigured to avoid impacts or buffer zones will be established and/or resident owls will be relocated, as described below. For projects that would permanently displace burrowing owl populations, habitat replacement could be required.

MM BIO-15.14: Buffer Zones

A 250-foot buffer, within which no new activity will be permissible, will be maintained between project activities and any nesting Burrowing Owls. This protected area will remain in effect until August 31, or at the CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently.

MM BIO-15.15: Relocation

If construction will directly impact occupied burrows, eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFG authorizing the eviction. No burrowing owls will be evicted from burrows during the nesting season (February 1 through August 31).

MM BIO-15.16: Habitat Replacement

For projects that would permanently impact occupied, burrowing owl habitat, habitat replacement may be required as part of a habitat mitigation plan and mitigation agreement with the California Department of Fish and Game. Habitat replacement could include protection of the habitat replacement area in perpetuity by a conservation easement or fee title acquisition. Burrowing owl replacement habitat (for projects in northern San Benito County) should be identified within the northern San Benito County or southern Santa Clara County area.

Construction Impacts to Large Nesting Colonies of Tricolored Blackbirds

Large Tricolored Blackbirds nesting colonies are present in wetland habitats in northern San Benito County. This species could be impacted by construction activities during the nesting season (March 1 to July 1). Construction close to active colonies could result in desertion of nests.

MM BIO-15.17: Preconstruction Surveys and Avoidance

Prior to construction during the breeding season (March 1 to July 1) within 250 feet of potential nesting habitat for Tricolored Blackbirds (wetland

habitat with tall vegetation nearby), preconstruction surveys will be conducted. If Tricolored Blackbirds are present, construction will be delayed until after the breeding season.

Further Program-level Mitigation Measures to be Applied if a Pipeline Crossing or Stormwater Outfall is Required as Part of Phase 2 Improvements

Construction Impacts to Riparian Habitats

MM BIO-15.18: Avoidance and Minimization

New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to riparian habitats. If avoidance is not possible, then riparian habitat replacement will be required.

MM BIO-15.19: Riparian Habitat Replacement

Permanent impacts to vegetation within riparian habitats are typically mitigated at ratios based on the quality of the habitat to be impacted. Due to the complex mosaic of habitats often found within riparian corridors, impacts are typically assessed based on three habitat quality categories, described below. This methodology ensures that, regardless of the type of habitat impacted, its relative value and time required to reestablish replacement habitat is taken into account in quantifying impacts and necessary mitigation. As a result, the impact quantities are not calculated by habitat type, but rather by habitat quality category.

The three habitat quality categories are:

- High quality – Native overstory with continuous understory or occurring in dense thickets; dense native overstory with sparse, non-native or no understory; and native willow thicket.

- Medium quality – Sparse native overstory with sparse, non-native or no understory, non-native overstory with native understory, and dense non-native overstory with sparse, non-native or no understory.

- Lower quality – Sparse non-native overstory with sparse, non-native or no understory. In addition, any areas not included in medium or high quality categories that will be covered with riprap, gabions, etc. (e.g., ruderal habitat and bare ground).

Mitigation ratios of 3:1, 2:1, and 1:1 (replacement acres:lost acres) will generally be applied for impacts to high, medium and low-quality habitats, respectively.

The assessment of riparian impacts and the subsequent location and design of potential mitigation sites will be determined by qualified biologists in coordination with resource agency personnel. These plans will include the following:

a. A description of how the restoration will replace the lost acreage, functions, and values of riparian habitat.

b. Site specific restoration design with a complete analysis of the technical approach to create high quality riparian habitat. The design will include an implementation plan that details site grading, soil amendments, irrigation, planting list, floodplain connectivity, geomorphic conditions and anticipated wildlife use. Revegetation should use native species with seeds or cuttings collected on-site or locally. The restoration plan will also include an explanation of all required site maintenance. A monitoring plan will be developed that includes success criteria for all riparian plantings.

MM BIO-15.20: Consolidation of Riparian Mitigation

If multiple smaller impact areas occur, it would be beneficial to consolidate mitigation into a larger habitat restoration area. Larger riparian restoration areas would provide greater functions and values than numerous small mitigation sites. The location and design of potential mitigation sites will be determined by qualified restoration biologists in coordination with resource agency personnel.

MM BIO-15.21: Permits

Prior to construction within the bed and banks of creeks, rivers, or lakes, the project proponent will apply for and obtain a Streambed Alteration Agreement from the California Department of Fish and Game.

Construction Impacts to Aquatic Habitat and Species

MM BIO-15.22: Implementation of Best Management Practices For Work in Stream Channels

Implementation of Best Management Practices described below will reduce potential impacts to aquatic species to a less-than-significant level. The following recommendations by the California Department of Fish and Game must be followed, regardless of whether any watercourse within project element footprints are dewatered or not, in order to comply with proper mitigation measures:

a. No equipment will be operated in the live stream channel.

b. When work in a flowing stream is unavoidable, any stream flow shall be diverted around the work area by a barrier, temporary culvert or a new channel capable of permitting upstream and downstream fish movement.

c. Construction of the barrier or the new channel shall normally begin in the downstream area and continue in an upstream direction and the flow shall be diverted only when construction of the diversion is completed.

d. No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the State.

MM BIO-15.23: **Impacts to Steelhead**
Steelhead could occur in the San Benito River, Pacheco Creek, and any other unobstructed tributary of the Pajaro River. Construction activities that will occur in stream habitat (e.g. those involving diversion structures) could directly impact steelhead. If channel diversions occur, steelhead could become stranded, and activities in channels could result in direct take of individuals. In addition, construction activities could result in degradation of water quality (e.g. through leaching cement altering stream pH or increasing sedimentation).

MM BIO-15.24: **Construction Scheduling and Work in Channels Where Water is Present**
Construction in tributaries of the Pajaro River will be limited to the dry season (June 1 to October 31), when steelhead are least likely to be present. Most of the San Benito River and other tributaries are typically dry during this time period. If construction will occur in a live, flowing, stream channel, National Marine Fisheries Service (NMFS) will be consulted regarding measures necessary to prevent take. Because it is possible that juveniles could be moving downstream during any time of year, including the dry season, these measures should ensure that movement of steelhead is not prevented by any water diversion structures used during construction, regardless of when construction occurs. Ideally, the live stream channel will be maintained and protected (e.g. by a structure covering the channel, and coffer dams around construction areas). If the live channel cannot be maintained, water would be diverted through construction sites by way of an open ditch (rather than a pipe) connecting the portions of the channel immediately upstream and downstream from the site. This plastic-lined ditch should also be lined with cobble-sized stones to deter predation by making the steelhead less conspicuous as they pass through the channel. Water within this ditch should be at least 30 centimeters (12 inches) deep, and no impediments to movement, such as high drop structures, will be present.

MM BIO-15.25: **Reduce Barriers to Movement.**
The placement of diversion structures or other hardscape within and immediately adjacent to the low flow channel of any tributary could cause an impediment to migration for steelhead. Potential in-stream structures will be designed in such a way as to not encroach upon the low flow channel and be designed to avoid hardscape that could result in significant eddies within the low flow channel.

MM BIO-15.26: **Consultation with National Marine Fisheries Service**
Consultation with National Marine Fisheries Service will be completed for any new project activities that could affect steelhead such as dewatering creeks or rivers, or any in-stream construction.

3.4.6 Conclusion

Impact BIO-1: Implementation of the proposed Phase 1 improvements would not result in impacts to special-status plants. **[Less than Significant Impact]**

Impact BIO-2: Implementation of the proposed Phase 1 improvements would not result in

impacts to special-status animals (apart from California tiger salamander, California red-legged frog, and western spadefoot). **[Less than Significant Impact]**

Impact BIO-3: Implementation of the proposed Phase 1 improvements could result in impacts to California tiger salamander, California red-legged frog, and western spadefoot during construction. Mitigation and avoidance measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

Impact BIO-4: Implementation of the proposed Phase 1 improvements could result in impacts to western pond turtles during construction. Mitigation and avoidance measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

Impact BIO-5: Implementation of the proposed Phase 1 improvements could result in impacts to individual burrowing owls during construction. Mitigation and avoidance measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

Impact BIO-6: Implementation of the proposed Phase 1 improvements could result in impacts to San Joaquin kit foxes during construction. Mitigation and avoidance measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

Impact BIO-7: Implementation of the proposed Phase 1 improvements could result in temporary impacts to American badger during construction. Mitigation and avoidance measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

Impact BIO-8: Implementation of the proposed Phase 1 improvements could result in impacts to nesting raptors during construction. Mitigation and avoidance measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

Impact BIO-9: Implementation of the proposed Phase 1 improvements could result in impacts to nesting waterfowl during dewatering and filling ponds at RM II. Mitigation and avoidance measures included in the project would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

Impact BIO-10: Implementation of the proposed Phase 1 improvements would not result in a substantial loss of habitat for native wildlife. **[Less than Significant Impact]**

Impact BIO-11: Implementation of the proposed Phase 1 improvements would not result in a significant interference with the movement of native wildlife. **[Less than**

Significant Impact]

Impact BIO-12: Implementation of the proposed Phase 1 improvements would not result in significant impacts to riparian habitats or other sensitive natural communities. **[Less than Significant Impact]**

Impact BIO-13: Implementation of the proposed Phase 1 improvements would not result in significant water quality impacts to seasonal drainages, stock ponds, and downstream waters. **[Less than Significant Impact]**

Impact BIO-14: Implementation of the proposed Phase 1 improvements would not result in significant impacts to trees. **[Less than Significant Impact]**

Impact BIO-15: Implementation of the proposed Phase 2 improvements could result in impacts to biological resources, such as sensitive habitats and special-status species. Program-level mitigation and avoidance measures would reduce these impacts to a less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

3.5 HAZARDS AND HAZARDOUS MATERIALS

3.5.1 Introduction and Regulatory Framework

Hazardous materials encompass a wide range of substances, some of which are naturally-occurring and some of which are man-made. Examples include pesticides, herbicides, petroleum products, metals (e.g., lead, mercury, arsenic), asbestos, and chemical compounds used in manufacturing. Determining if such substances are present on or near project sites is important because, by definition, exposure to hazardous materials above regulatory thresholds can result in adverse health effects on humans, as well as harm to plant and wildlife ecology.

Due to the fact that these substances have properties that are toxic to humans and/or the ecosystem, there are multiple regulatory programs in place that are designed to minimize the chance for unintended releases and/or exposures to occur. Other programs set forth remediation requirements at sites where contamination has occurred.

Table 3.5-1 summarizes many of these regulations and applicable regulatory agencies that would have jurisdiction over the project site.

Table 3.5-1
Regulation of Hazardous Materials

Agency	Responsibilities
U.S. Environmental Protection Agency (EPA)	Oversees Superfund sites; evaluates remediation technologies; develops standards for hazmat disposal & cleanup of contamination; implements Clean Air & Clean Water Acts.
U.S. Department of Transportation (DOT)	Regulates and oversees the transportation of hazardous materials.
U.S. Occupational Safety & Health Administration (OSHA)	Implements federal regulations and develops programs and procedures regarding the handling of hazardous materials for the protection of workers.
CA Department of Toxic Substances Control (DTSC)	Authorized by EPA to implement and enforce various federal hazardous materials laws and regulations; implements state hazmat regulations; oversees remediation of contamination at various sites.
CA Occupational Safety & Health (Cal-OSHA)	Implements state regulations and develops programs and procedures regarding the handling of hazmat for the protection of workers.
CA Air Resources Board/ Monterey Bay Unified Air Pollution Control District	Regulates emissions of toxic air contaminants and requires information regarding the risk of such emissions to be available to the public.
CA Water Resources Control Board/Regional Water Quality Control Board	Regulates the discharge of pollutants to surface and ground waters; oversees remediation of contamination at various sites.

Table 3.5-1 Regulation of Hazardous Materials, continued	
Agency	**Responsibilities**
San Benito County, Public Health Division	Oversees and enforces state/local regulations pertaining to hazardous waste generators and risk management programs, including the California Accidental Release Program (CalARP).
San Benito County Water District	Responsible for groundwater protection; oversees remediation of contamination at various sites.
San Benito County Fire Department	Requires businesses that use or store regulated hazardous materials to prepare a management plan; regulates installation and removal of above- and below-ground storage tanks; reviews plans for compliance with applicable Fire Codes, including those for flammable and combustible liquids.

3.5.2 Existing Setting

On-Site Hazardous Materials

The proposed Phase 1 project area has been developed since the 1980's with residential and golf course uses in the Ridgemark development. Previous to the development of these uses, the site may have been used for agricultural and ranching purposes. Agricultural chemicals such as pesticides and herbicides may have been used on the site in the course of normal farming operations.

Limited amounts of hazardous materials, such as diesel fuel, oils, and lubricants are used at the RM I and RM II facilities and the main lift station. Oils and lubricants are used as part of pump and equipment maintenance. The District currently stores diesel fuel in a 55-gallon drum for the backup generators located at the main lift station and at RM II for the existing pump station**.**

Off-Site Hazardous Materials

Groundwater Contamination: As discussed in *Section 3.3, Hydrology and Water Quality*, current operations by both regulated facilities and non-point sources have introduced new local contaminants into groundwater in the area including perchlorate, metals, and volatile organic chemicals. Four regulated industrial facilities in the area have been documented as using and releasing perchlorate into the environment. The Whittaker Ordinance, McCormick Teledyne, BAE systems (United Defense), and MK Ballistics facilities are all currently required to monitor groundwater for perchlorate and report the concentrations to the RWQCB. These facilities are located downgradient from the Ridgemark wastewater treatment facilities.

Other localized groundwater contaminants reported in the larger groundwater basin include MTBE and petroleum compounds from leaking gasoline storage tanks and volatile organic compounds at the John Smith Landfill, located east of the Hollister East subbasin. Based upon a search of the State Water Resources Control Board "Geotracker" site for Leaking Underground Tanks in October 2008, there are no reported leaking underground storage tanks in or immediately adjacent to the Ridgemark development.[48]

[48] California State Water Resources Control Board, Geotracker, http://www.geotracker.swrcb.ca.gov/.

Other Hazards

The site is not located within the vicinity of airports in the area, which include the public Hollister Municipal Airport, approximately five miles north of the Ridgemark development; and the private Frazer Lake and Christensen airports (approximately 11 miles north and four miles northeast, respectively).

Ruderal grasslands, as described in *Section 3.4, Biological Resources*, are located adjacent to RM I, Pond 6 and other areas within the Ridgemark development, and could be affected by grassland fires. However, the wastewater facilities are separated from the grassland areas by access driveways and berms, and are not likely to be affected by wildland fires. The Ridgemark development is within an unzoned area on the California Department of Forestry and Fire Protection (CalFire) draft Fire Hazard Severity Zones Maps for San Benito County.[49]

3.5.3 Hazards and Hazardous Materials Impacts

3.5.3.1 *Thresholds of Significance*

For the purposes of this EIR, a hazardous materials impact is considered significant if the project would:

- Create a significant hazard to the public or the environment as a result of the routine transport, use, or disposal of hazardous materials; or
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; or
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school; or
- Construct a school on a property that is subject to hazards from hazardous materials contamination, emissions, or accidental release; or
- Create a significant hazard to the public or the environment from existing hazardous materials contamination by exposing future occupants or users of the site to contamination in excess of soil and groundwater cleanup goals developed for the site; or
- Result in a safety hazard for people residing or working in the project area (for a project located within an airport land use plan); or
- Result in a safety hazard for people residing or working in the project area (for a project within the vicinity of a private airstrip); or
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation route; or
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

[49] Source: CalFire Fire Hazard Severity Zones for San Benito County. [http://www.fire.ca.gov/fire_prevention/fhsz_maps_sanbenito.php], accessed November 10, 2008.

3.5.3.2 *Hazardous Materials Impacts of Phase 1 Improvements*

As described above, the existing wastewater operations on the site involve the use, handling, and storage of hazardous materials, primarily lubricant oil for equipment and diesel fuel for emergency backup generators. Phase 1 project improvements would include the installation of three new diesel back-up generators to replace the ones currently in use at RM II and the main lift station. Additional diesel fuel would be stored at RM I, and other materials used or stored at RM I could include sodium hypochlorite (for disinfection), polymers for sludge processing, and alum. Small quantities of reagent chemicals could also be stored in the sample room within the operations building at RM I. Hazardous materials used for construction of Phase 1 improvements could include diesel and gasoline for fuel, paints, lubricating fluids, and other potentially hazardous materials. Fertilizers and pesticides could be used during the revegetation of disturbed areas or maintenance of new landscape trees, but would not likely be stored on the RM I site.

The implementation of the Phase 1 improvements could introduce additional hazardous materials near a residential population. The residences are separated from the wastewater treatment areas by fences, access roads, and landscaping, with the nearest residences as close as 60 feet from RM I (from edge of access road to property line) and 150 feet from RM II. However, hazardous materials used for construction and operation of the Phase 1 improvements would be transported through the residential and golf course areas to reach the wastewater treatment areas. Chemicals that would be used for Phase 1 operations, such as diesel, would be stored in a bulk tank with secondary containment within buildings or other enclosures.

Even if a hazardous material is accidentally released, it does not necessarily have the potential for causing off-site consequences. The project does not propose to use hazardous materials regulated under CalARP,[50] and hazardous materials would be kept in small quantities that would make an accidental release unlikely to result in a substantial concentration that would travel very far from the source.

Biosolids, as described in *Section 1.3, Project Description,* would be generated by the SBR unit, at an annual disposal rate of approximately 880 wet tons per year. Solids would likely be removed about four times per year following drying cycles. Biosolids are considered a non-hazardous waste, but may create odor impacts, as discussed in *Section 3.7, Air Quality*.

Hazardous materials used for construction of Phase 1 improvements could include solvents and flammable liquids, diesel and gasoline for fuel, paints, lubricating oils, asphalt for repaving of streets following installation of pipelines, and other potentially hazardous materials.

The District would be required to comply with all federal, state, and local ordinances and statues regulating the use, transport, and disposal of hazardous materials and hazardous waste, such as those of the Department of Toxic Substances Control, the Regional Water Quality Control Board, the California Occupational Safety and Health Administration, and the San Benito County Fire Department. For these reasons, the proposed Phase 1 improvements would have a less than significant hazardous materials impact.

[50] Quantities of stored chemicals regulated under CalARP (the California Accidental Release Program) are those that have the potential to have off-site consequences if accidentally released. They also are sometimes referred to as acutely hazardous materials.

Other Hazards

Construction activities, especially near unirrigated hillsides near RM I may create sparks, which could increase the risk of fires in the area. The use of powered equipment and vehicles parking in grassy areas are also fire hazards during construction. Grassy vegetation at RM I is limited around the treatment ponds and gravel roads.

Impact HAZ-1: Hazardous materials used during the construction and operation of the proposed Phase 1 improvements are not anticipated to create a significant hazard to the public or the environment. **[Less than Significant Impact]**

3.5.3.3 *Hazardous Materials Impacts of Phase 2 Improvements*

Phase 2 improvements are likely to take place within or near the Ridgemark residential development, although the exact project location has not been determined, and therefore the impacts of these improvements can only be addressed at a program-level. Future improvements under Phase 2, such as water treatment facilities and pipelines, would have generally similar environmental effects to Phase 1 improvements. Since specific locations and the physical extent of potable water improvements are not known, the impacts of Phase 2 of the project cannot be addressed with certainty. These impacts could include locating hazardous materials storage or use near residences and/or schools, or the use of hazardous materials such as hypochlorite to treat potable water. These possible impacts from Phase 2 of the project could be mitigated in a similar fashion to the impacts from Phase 1, by required compliance with federal, state, and local laws and regulations.

The specific impacts of a water treatment facility are discussed below.

Water Treatment Facility

A potable water treatment facility would use and store water treatment chemicals to meet Department of Public Health requirements for potable drinking water. Sodium hypochlorite, or a similar disinfectant, likely would be used for disinfection of the treated water. Antiscalant, calcium hydroxide (lime), and sodium hydroxide may be added to the water as part of the treatment process. All chemicals would be required to be stored within chemical containment areas that provide secondary containment. While direct contact with disinfectants such as sodium hypochlorite can result in the severe irritation of skin and eyes, and inhalation of vapors should be avoided, these substances are not classified as acutely hazardous materials.

Antiscalant (polyacrylate) likely would be used in small quantities to prevent the buildup of salt deposits in water tubing or pipes. For a membrane process, a detergent mixture would be used several times per year to clean the membranes. The cleaning solution would be discharged to a sanitary sewer. These chemicals are non-volatile, non-hazardous compounds that would not pose a major risk to public health.

A potable water treatment facility under Phase 2 is not likely to use or store hazardous or acutely hazardous materials that could have off-site consequences if accidentally released. Therefore, the Phase 2 project improvements are unlikely to result in impacts to sensitive receptors in rural residential areas.

Since water supply is a critical function, a future water treatment facility would have some form of emergency backup power supply. An engine used to generate backup power could use natural gas, propane, or diesel fuel and some fuel storage would be likely on site.

The SSCWD would be required to prepare a Hazardous Materials Business Plan (HMBP) for a future water treatment facility. The HMBP would include information on hazardous material handling and storage, including containment, site layout, and emergency response and notification procedures for a spill or release from fuel tanks or other chemical storage. The SSCWD would submit the plan to the Public Health Division of the County of San Benito Health and Human Services Agency, prior to the start of operation of the water treatment facility.[51] The HMP shall establish policies and procedures to protect workers and the public from potential hazards. The plan shall be prepared according to federal and California OSHA regulations for hazardous materials Health and Safety Plans.

Impact HAZ-2: By compliance with existing laws and regulations, the routine use of water treatment chemicals at a future potable water treatment facility is not anticipated to create a significant hazard to the public or the environment. **[Less than Significant Impact]**

3.5.4 Mitigation and Avoidance Measures

3.5.4.1 *Phase 1 Project-Level Mitigation and Avoidance Measures*

By compliance with existing regulatory requirements for the storage, use, and transport of hazardous materials, additional project-level mitigation measures would not be required. Although **Impact HAZ-1** is not considered significant, the following measure is included in the project in the event contamination is encountered during excavation for pipelines.

AVOIDANCE MEASURE HAZ-1: If contaminated soil, contaminated groundwater, or undocumented underground fuel storage tanks are encountered during trenching activities, all work shall be halted in the area, and the type and extent of contamination shall be identified. Soils and groundwater would be handled, treated, and disposed of in accordance with federal, state, and local requirements. If appropriate, a qualified professional, in consultation with regulatory agencies (e.g., RWQCB, California Department of Toxic Substances Control, or San Benito County, Public Health Division) and retained by the property owner, shall then develop an appropriate method to remediate the contamination. If necessary, a remediation plan and/or soil management plan shall be implemented as part of continued project construction.

3.5.5 Conclusion

Impact HAZ-1: Hazardous materials used during the construction and operation of the proposed Phase 1 improvements are not anticipated to create a significant hazard to the public or the environment. **[Less than Significant Impact]**

Impact HAZ-2: By compliance with existing laws and regulations, the routine use of water treatment chemicals at a future potable water treatment facility is not anticipated to create a significant hazard to the public or the environment. **[Less than Significant Impact]**

[51] County of San Benito, Public Health Division, http://www.sanbenitoco.org/eh/hazmat.html.

3.6 TRAFFIC AND TRANSPORTATION

3.6.1 Existing Setting

3.6.1.1 *Existing Roadway Network*

The existing roadway network serving the project area includes regional roadway facilities and local roadway facilities. Regional access to the project area is provided by State Routes (SR) 25 and 156.

SR 25 is a two-lane highway that carries regional traffic between Gilroy and Hollister. SR 25 begins at its junction with Highway 101 in Gilroy and extends south through Hollister towards Paicines.

SR 156 is a two-lane highway that carries regional traffic between Highway 101 and Highway 152. State Route 156 is a major roadway for trucks traveling between Highway 101 and Interstate 5. Between Hollister and San Juan Bautista, SR 156 is a two-lane highway. Between San Juan Bautista and US 101, SR 156 is a four-lane divided highway.

Local access to the project area is provided by Airline Highway, Fairview Road, and Union Road.

Airline Highway is a two- to four-lane arterial roadway that runs through Hollister. Airline Highway begins at Tres Pinos Road/Sunnyslope Road where it changes designation from McCray Street. Airline Highway is also State Route 25 in the south part of Hollister.

Fairview Road is a two-lane north-south collector that is situated on the east edge of Hollister. Fairview Road provides access to Airline Highway to the south and to SR 25 and 156 to the north. Fairview Road becomes Ridgemark Drive south of Airline Highway.

Union Road is a two-lane roadway in south Hollister that extends from Highway 156 to Airline Highway, and a short distance beyond, where it terminates.

Best Road is a two-lane roadway that extends from John Smith Road in the north to Airline Highway where it terminates. South of Airline Highway, Best Road becomes South Ridgemark Drive.

Southside Road is a two-lane roadway that extends from Nora Road in the City of Hollister in the north to Airline Highway near Tres Pinos in the south, where it terminates. Private access roads connect Southside Road to the Ridgemark development.

The gated Ridgemark development contains a number of private streets, including several that are used by the District to access their facilities, including Ridgemark Drive, Mark's Drive, Paullus Drive, and Sonny's Way (Figure 2).

3.6.1.2 *Existing Traffic*

Currently, the Ridgemark wastewater treatment facilities generate vehicle trips for equipment maintenance and facility operations. Operations and maintenance vehicles travel from the District's headquarters at 3570 Airline Highway, north of the project site, to RM I or RM II within the Ridgemark area. The two wastewater facilities are approximately 1.5 miles from the District office.

3.6.2 Traffic and Transportation Impacts

3.6.2.1 *Thresholds of Significance*

For the purposes of this EIR, a transportation and traffic impact is considered significant if the project would:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections; or
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways; or
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks; or
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access, or
- Result in inadequate parking capacity, or
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

3.6.2.2 *Traffic Impacts Resulting from Phase 1 Improvements*

Project Traffic Impacts

Following project completion, employee trips from the District headquarters at 3570 Airline Highway to the Ridgemark facilities would likely increase. These trips would be for maintenance and operations of equipment to be installed under the proposed project. The location of project activities at the Ridgemark I and II facilities are approximately 1.5 miles from District headquarters.

Approximately five to ten additional employee trips per week may be required for operation and maintenance of the facilities. This low number of additional trips would not result in a substantial increase in traffic in relation to the existing area traffic, and would not cause additional impacts at neighboring intersections.

Impact TRAN-1: Traffic generated by the operation of proposed Phase 1 improvements would not substantially impact intersections and streets in the project vicinity. **[Less than Significant Impact]**

Construction Traffic Impacts

Equipment required for construction may include excavators, concrete pumping equipment, cranes, and compaction equipment (rollers). Other vehicles on the project site would include delivery trucks for equipment delivery, construction worker personal vehicles, and material deliveries. Most of the larger construction vehicles would be expected to remain on site for the duration of the project. Trucks used for material deliveries and sludge and debris removal would likely use State Routes 25 and 156, U.S. 101, and other local highways to access disposal sites and material suppliers.

The proposed wastewater treatment upgrade would have a construction duration of approximately 12 to 15 months. Most of the heavy equipment would be operated over a six to eight month period, with project operations being four to six hours per day, five days per week.

Projected truck trips for the proposed project are summarized below in Table 3.6-1, below.

Table 3.6-1
Construction Truck Trips

Project Activity	Estimated Duration in Months[1]	Estimated Work Days per Month	Estimated Total Work Days	Estimated Truck Round Trips[2]	Estimated Truck Round Trips per Day
Crushed Rock, Concrete, and Pavement Deliveries	12	20	240	415	1.7
Soil (Fill) Deliveries	6	20	120	1,800	15.0
Sludge Removal (During Project Construction)	6	20	120	200	1.7
Sludge Removal (Following Project Completion)	12	20	240	600	2.5

[1] The construction duration is estimated at 12 to 15 months. As the amount of cut and fill would be the same regardless of the timeline, a 15-month project duration would result in fewer daily truck trips.
[2] Based on an estimated 15 cubic yards per dump truck, 13 cubic yards per concrete truck, and 25 tons per sludge removal truck.

Total truck trips per day and per hour are summarized below for the proposed Phase 1 improvements.

Table 3.6-2
Estimated Truck Round Trips Per Day/Hour

Construction Period	First Six Months	Second Six Months	Post Construction
Estimated Total Truck Round Trips per Day	1.73	22.73	2.50
Estimated Total Truck Round Trips per Hour*	0.3	3.8	0.4

*Based upon an estimated six work hours per day.

The truck traffic that would be generated by the proposed project would generally be spread throughout the working day, and would not be confined to the AM and PM peak hours. This temporary increase in traffic during construction activities is not anticipated to substantially increase congestion at nearby intersections.

Construction vehicles will access the project site through the main entrance to the Ridgemark development at Airline Highway and Fairview Road. An alternative entrance from Southside Road near RM I may be used, pending land owner approval. A temporary access road from RM I to a soil borrow area within Pond 6 would primarily use an existing, private unimproved road within a construction easement, with the exception of an approximately 370 foot section that would be

constructed across a grassland area (Figure 8). Truck traffic on the temporary access road to Pond 6 would not result in congestion on public streets.

Impact TRAN-2: Construction traffic generated by the proposed Phase 1 improvements would have a less than significant impact on congestion in the area. **[Less than Significant Impact]**

Recycled Water Lines

Recycled water lines would be installed in streets in the Ridgemark development as part of Phase 1 improvements (Figure 3). The project to proposes to install approximately 9,000 feet of recycled water pipeline in Mark's Drive, Ridgemark Drive, and Paullus Drive, connecting RM I and possible mixing ponds on the golf course near Ridgemark Drive and Paullus Drive. As seen on Figure 3, alternative pipeline locations could be located in George's Drive, Ray's Circle, Ridgemark Drive, Joe's Lane, Donald Drive, and Ralph's Way.

The installation of recycled water pipelines may cause temporary traffic disruptions on local streets in the Ridgemark area. The District would have a construction manager for the project, who would coordinate construction activities including pipeline installation. Since the area of impact would be changing daily, these disruptions would have a less than significant impact on local traffic circulation.

Impact TRAN-3: The proposed installation of recycled water lines in Phase 1 would have a less than significant impact on traffic circulation within the Ridgemark area. **[Less than Significant Impact]**

3.6.2.3 *Traffic Impacts Associated with Phase 2 Improvements*

Phase 2 improvements could include demineralization and/or water softening of groundwater from wells, concentrate or sludge management facilities, support facilities (i.e. pumps, transmission pipelines, chemical handling, etc.) The time frame for these improvements would be approximately 2011 to 2040.

Construction and Operational Impacts

Operation of a potable water treatment system in the SSCWD service area would generate one to several trips per day to and from the potable water treatment facility. These trips would be spread throughout the day and would not result in substantial impacts to local or regional intersections.

The exact location and scope of these improvements has not been determined. Potable water treatment facilities would likely be in a one-story structure, and underground pipelines would extend between the treatment facility, wells, and existing potable water distribution system. Solids or concentrate disposal would also increase truck hauling trips.

Drying beds and/or evaporation ponds for the concentrate handling may require excavation. It is anticipated that the frequency of construction truck trips would be similar to the Phase 1 improvements, although the duration and truck routes are not known at this time. Subsequent environmental review will be required to assess construction impacts.

Traffic impacts from the implementation of these improvements could include increased intersection and roadway delays from construction vehicles and increased operational traffic from employee

travel following construction. The project is not likely to add a significant number of employee trips after the project is completed, and therefore operational traffic impacts would likely be less than significant.

Impact TRAN-4: Implementation of Phase 2 improvements are not anticipated to cause a substantial increase in traffic or traffic congestion. **[Less than Significant Impact]**

3.6.3 Conclusion

Impact TRAN-1: Traffic generated by the operation of proposed Phase 1 improvements would not substantially impact intersections and streets in the project vicinity. **[Less than Significant Impact]**

Impact TRAN-2: Construction traffic generated by the Phase 1 improvements would have a less than significant impact on congestion in the area. **[Less than Significant Impact]**

Impact TRAN-3: The proposed installation of recycled water lines in Phase 1 would have a less than significant impact on traffic circulation within the Ridgemark area. **[Less than Significant Impact]**

Impact TRAN-4: Implementation of Phase 2 improvements are not anticipated to cause a substantial increase in traffic or traffic congestion. **[Less than Significant Impact]**

3.7 AIR QUALITY

The following discussion is based in part upon an air quality analysis prepared by *Don Ballanti, Certified Consulting Meteorologist* in September 2008. This report was prepared in accordance with guidance provided by the Monterey Bay Unified Air Pollution Control District (MBUAPCD) and is attached to this EIR as Appendix E.

3.7.1 Introduction and Regulatory Framework

3.7.1.1 *Federal General Conformity Rule for the Federal Clean Air Act*

Federal clean air laws require areas with unhealthy levels of ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and inhalable particulate matter to develop plans, known as State Implementation Plans (SIPs), describing how these areas will attain national ambient air quality standards (NAAQS). Local air districts and other agencies prepare SIP elements and submit them to the California Air Resources Control Board (CARB) for review and approval. The Air Resources Board forwards SIP revisions to the federal Environmental Protection Agency (EPA) for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items that are included in the California SIP. Emission inventories may be obtained from the local air pollution control agency.

For projects seeking State Revolving Fund loans from the State Water Resources Control Board, a Clean Air Act general conformity analysis would be required for projects in a nonattainment area or an attainment area subject to a maintenance plan and is required for each criteria pollutant for which an area has been designated nonattainment or maintenance. If a project's emissions are below the "de minimis" level and are less than 10 percent of the area's inventory specified for each criteria pollutant in a nonattainment or maintenance area, further general conformity analysis is not required. A conformity determination must be made if emissions from project facilities are above "de minimis" thresholds established for the area. A conformity determination can be made if facilities are sized to meet only the needs of current population projections that are used in the approved SIP for air quality.

The project area is within a federal maintenance area for the federal one-hour standard.

3.7.1.2 *Monterey Bay Unified Air Pollution Control District Rules*

The Monterey Bay Unified Air Pollution Control District has several rules and permit requirements that apply to wastewater treatment facilities. Rule 200 addresses when District permits are required to construct new or modified facilities. Rule 216 requires agencies such as SSCWD to obtain permits to operate wastewater treatment facilities and for new or modified wastewater treatment facilities to be consistent with the adopted Air Quality Plan. Rule 402 addresses nuisances and prohibits any discharge air contaminants or other materials from any source which "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public". This rule would apply to the generation of any annoying odors from District facilities.

3.7.2 Existing Setting

3.7.2.1 *Air Pollution Climatology*

The project is within the North Central Coast Air Basin (NCCAB), which is comprised of Santa Cruz, San Benito, and Monterey Counties. A semi permanent high pressure in the eastern Pacific is the controlling factor in the climate of the air basin. In late spring and summer, the high pressure system is dominant and causes persistent west and northwesterly winds over the entire California coast. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. Warmer air aloft creates elevated inversions that restrict dilution of pollutants vertically, and mountains forming the valleys restrict dilution horizontally.

In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The air flow is occasionally reversed in a weak offshore movement, and the relatively stagnant conditions allow pollutants to accumulate over a period of days. It is during this season that the north or east winds develop that transport pollutants from either the San Francisco Bay Area or the Central Valley into the NCCAB.

During winter and early spring the Pacific High migrates southward and has less influence on the air basin. Wind direction is more variable, but northwest winds still dominate. The general absence of deep, persistent inversions and occasional storm passages usually result in good air quality for the basin as a whole.

The project site is located at the northern end of the San Benito Valley and experiences west winds nearly one-third of the time. The prevailing air flow during the summer months probably originates in the Monterey Bay area and enters the San Benito Valley via the gap through the Gabilan Range formed by the Pajaro River. In addition, a northwesterly flow frequently transports pollutants into the San Benito Valley from the Santa Clara Valley.

3.7.2.2 *Ambient Air Quality Standards*

Criteria Pollutants

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The federal and California state ambient air quality standards are summarized in Table 3.7-1.

Table 3.7-1 Federal and State Ambient Air Quality Standards			
Pollutant	**Averaging Time**	**Federal Primary Standard**	**State Standard**
Ozone	1-Hour 8-Hour	-- 0.075 ppm	0.09 ppm 0.07 ppm
Carbon Monoxide	8-Hour 1-Hour	9.0 ppm 35.0 ppm	9.0 ppm 20.0 ppm
Nitrogen Dioxide	Annual 1-Hour	0.05 ppm --	0.03 ppm 0.18 ppm
Sulfur Dioxide	Annual 24-Hour 1-Hour	0.03 ppm 0.14 ppm --	-- 0.05 ppm 0.25 ppm
PM_{10} (Particulate Matter)	Annual 24-Hour	-- 150 ug/m^3	20 ug/m^3 50 ug/m^3
$PM_{2.5}$ (Particulate Matter)	Annual 24-Hour	15 ug/m^3 35 ug/m^3	12 ug/m^3 --
Lead	30-Day Avg. 3-Month Avg.	-- 1.5 ug/m^3	1.5 ug/m^3 --
ppm = parts per million ug/m^3 = Micrograms per Cubic Meter Source: California Air Resources Board, Ambient Air Quality Standards (04/01/08) http://www.arb.ca.gov.aqs/aaqs2.pdf			

The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and particulate matter (PM_{10} and $PM_{2.5}$)

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene and acetaldehyde.

Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

3.7.2.3 *Ambient Air Quality*

The Monterey Bay Unified Air Pollution Control District (MBUAPCD) operates a network of monitoring sites throughout its district, including one in Hollister. The Hollister monitoring site measures ozone, PM_{10} and $PM_{2.5}$. The National Park Service also operates an ozone monitoring site in Pinnacles National Monument, about 25 miles southeast of the project site.

Table 3.7-2 summarizes exceedances of State and Federal standards at theses monitoring sites during the period 2005 to 2007. Table 3.7-2, below, shows that the state/federal ozone and state PM_{10} standards are exceeded in the San Benito Valley.[52]

Table 3.7-2
Air Quality Data for the San Benito Valley

Pollutant/Standard	Year	Hollister	Pinnacles National Monument
State One-Hour Ozone	2005	0	2
	2006	1	2
	2007	0	1
State Eight-Hour Ozone	2005	1	6
	2006	5	18
	2007	2	17
Federal Eight-Hour Ozone	2005	0	1
	2006	1	1
	2007	0	0
State 24-Hour PM_{10}	2005	0	-
	2006	0	-
	2007	0	-
Federal 24-Hour PM_{10}	2005	0	-
	2006	0	-
	2007	0	-
Federal 24-Hour $PM_{2.5}$	2005	-	-
	2006	-	-
	2007	0	-

Source: Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2008 (http: //www.arb.ca.gov./adam/cgi-bin/adamtop/d2wstart)

3.7.2.4 *Attainment Status and Regional Air Quality Plans*

The MBUAPCD shares responsibility with CARB for ensuring that the state and national ambient air quality standards are met within the North Central Coast Air Basin. State law assigns local air districts the primary responsibility for control of air pollution from stationary sources while reserving to CARB control of mobile sources. The MBUAPCD is responsible for developing regulations governing emissions of air pollution, permitting and inspecting stationary sources, monitoring air quality and air quality planning activities.

Under the Federal Clean Air Act the NCCAB is designated a maintenance area for the federal one-hour ozone standard. The NCCAB was re-designated from a moderate nonattainment area to a maintenance area in 1997 after meeting the federal one-hour standard in 1990. The NCCAB is designated as unclassified/attainment for the federal eight-hour ozone standard. Under the California Clean Air Act (CCAA), the basin is a moderate non-attainment area for the state one-hour ozone standard. The air basin is also designated non-attainment for the state PM_{10} standard.

[52] As defined by the Monterey Bay Unified Air Pollution Control District, the San Benito Valley is south of the Santa Clara Valley, runs northwest-southeast and has the Gabilan Range as its western boundary.

As required by the CCAA, the MBUAPCD adopted the *1991 Air Quality Management Plan* (AQMP). The AQMP addressed attainment of the state ambient air quality standard for ozone. In 1994, 1997, 2000, 2004, and 2008 the District adopted updates to the AQMP. The *2008 Air Quality Management Plan for the Monterey Bay Region*[53] *is* the current regional air quality plan for the state ozone standards. The goal of the Plan is to improve air quality through tighter industry controls, cleaner cars and trucks, cleaner fuels, and increased commute alternatives.

Adopted Transportation Control Measures (TCMs) listed in the Plan include:

- Improved Public Transit
- Area Wide TIDM
- Signal Synchronization
- New and Improved Bicycle Facilities
- Alternate Fuels
- Park and Ride Lots
- Livable Communities
- Selected Intelligent Transportation Systems
- Traffic Calming

The federal Clean Air Act requires that areas that have attained a federal standard develop plans to demonstrate continued maintenance of the federal standard. The current federal maintenance plan is the *2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region*.[54]

3.7.2.5 *Sensitive Receptors*

Some groups of people are more affected by air pollution than others. CARB has identified the following people who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks.

The sensitive receptors closest to the District facilities include residents at the Ridgemark Golf and Country Club. The closest residences to the RM I facility are located on Everest Drive, north of Ponds 1 and 2, and on the hillside southeast of Pond 4. Seven residences on Everest Drive are within approximately 200-400 feet of the RM I facility. A residence located below the facility is approximately 250 feet southeast of RM I. The closest residences to the RM II facility are located on Sonny's Drive and Diane Court, west and northwest of the treatment and percolation ponds. Approximately 15 residential properties are located within 200-300 feet of RM II. The residential area on Labor Camp Road, below Pond 6, is within 50 feet of proposed construction access easements.

[53] Monterey Bay Unified Air Pollution Control District, *2008 Air Quality Management Plan for the Monterey Bay Region*, August 2008.
[54] Monterey Bay Unified Air Pollution Control District and Association of Monterey Bay Area Governments, *2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region*, Approved March 21, 2007 (MBUAPCD) and May 9, 2007 (AMBAG).

Odors

Wastewater treatment facilities and sanitary sewer lines are a potential source of odors associated with the treatment or conveyance of organic materials. Odors occur primarily under anaerobic (low oxygen) conditions. The Monterey Bay Unified Air Pollution Control District has no records of odor complaints from RM I or RM II during the last eight years.[55]

3.7.3 Air Quality Impacts

3.7.3.1 *Thresholds of Significance*

Based on the CEQA Guidelines, and for the purposes of this EIR, an air quality impact is considered significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan; or
- Violate any air quality standard or contribute substantially to an existing or project air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard; or
- Expose sensitive human receptors or the general public to substantial pollutant concentrations; or
- Create or expose a substantial number of people to objectionable odors.

The standards for the Federal Clean Air Act and the Monterey Bay region are described in more detail below.

Federal Clean Air Act
Thresholds of Significance

The proposed project will seek funding through the State Revolving Loan Fund administered by the State Water Resources Control Board. Since this program is partially funded by the U. S. Environmental Protection Agency, the project would be subject to the conformity requirements of the Clean Air Act Amendments. The conformity provisions of the Act are designed to ensure that federal agencies contribute to, instead of jeopardizing, efforts to achieve the National Ambient Air Quality Standards (NAAQS).

The General Conformity rules require conformity determinations for projects if they generate more emissions than minimum thresholds and are not specifically exempted by the regulation. The North Central Coast Air Basin is currently a federal maintenance area for the federal one-hour ozone standard, and the General Conformity rules establish the following "de minimis" thresholds:

- 100 tons per year for VOCs
- 100 tons per year for NO_x

These "de minimus" thresholds apply to both construction and operation of a project.

[55] Source: Cindy Searson, Senior Administrative Assistant, Monterey Bay Unified Air Pollution Control District, written communication January 7, 2009.

Monterey Bay Unified Air Pollution Control District
Thresholds of Significance

The Monterey Bay Unified Air Pollution Control District has established recommended thresholds of significance during construction and operation of a project, to be used to evaluate air quality impacts in environmental documents.[56] The recommended threshold of significance for construction is PM_{10} emissions of 82 pounds per day or greater. For operational direct and indirect emissions, the following thresholds are applicable:

Table 3.7-3
MBUAPCD Operational Thresholds

Pollutant	Threshold
Volatile Organic Compounds (VOC)	137 pounds/day (direct + indirect)
Nitrogen Oxides (NO_x)	137 pounds/day (direct + indirect)
Particulate Matter (PM_{10})	82 pounds/day (direct only)
Carbon Monoxide (CO)	550 pounds/day (direct only)
Sulfur Oxides (SO_x)	150 pounds/day (direct only)

Direct emissions refer to pollutants generated onsite from equipment or stationary engines. These types of sources typically are found at industrial or manufacturing facilities. MBUAPCD guidelines state that exceeding the above thresholds for PM_{10}, CO or SO_x, is not a significant impact if MBUAPCD approved air quality modeling indicates that the source would not result in a violation of the corresponding state and federal ambient air quality standards.

Indirect emissions are those related to vehicle traffic attracted or generated by a project. Indirect sources such as the proposed project emissions are to be compared to the thresholds for VOC and NO_x. MBUAPCD guidelines additionally identify several traffic-related thresholds related to the potential for high carbon monoxide concentrations. If any of these traffic thresholds are exceeded, carbon monoxide modeling should be undertaken to determine if indirect source emissions would cause an exceedance of state or national standards. If modeling demonstrates that the project would not cause or substantially contribute to an exceedance of carbon monoxide standards, the project would not have a significant impact.

Exhaust emissions from construction equipment and vehicles emit precursors of ozone (VOC and NO_x) as well as PM_{10}, but emissions from these sources are assumed to be accommodated in the emission inventories of the state and federally required air plans and would not have a significant impact on the attainment and maintenance of the ozone standards.

3.7.3.2 *Air Quality Impacts from Phase 1 Improvements*

Operational Emissions Impacts

Operational emissions would include vehicle and generator emissions, as described below.

Vehicle Emissions: New operational vehicular activity resulting from the project would be limited to additional employee travel from SSCWD headquarters to the RM I facility for maintenance activities. The distance is approximately two miles, and trip generation is estimated at five to ten

[56] Monterey Bay Unified Air Pollution Control District, *CEQA Air Quality Guidelines*, July 2004.

trips per week. Based on EMFAC-2007 emission rates for light-duty trucks, this new activity would generate about three pounds of NO_x per year and less than one pound of ROG or particulate matter per year.

Generator Emissions: Other new emissions sources associated with the project would be three new emergency generators that would replace the one emergency generator currently in use. The new emergency generators would require permits from the Monterey Bay Unified Air Pollution Control District, and would be subject to current MBUAPCD requirements. The MBUAPCD will not issue permits until it has been demonstrated via a health risk assessment that the proposed sources will not exceed the District's health risk thresholds of significance.

Current regulation would impose restrictions on the generators in terms of fuel, hours of operation and emission rates. Based on EPA Tier I Non-Road Diesel Engine emissions standards, the maximum annual emission from maintenance and testing of these engines was calculated.[57] The resulting operational emissions, as shown in Table 3.7-4, do not exceed the MBUAPCD significance criterion of 137 pounds per day for ROG or NO_x, indicating that operational emissions impacts would be less than significant.

Clean Air Act Conformity: Operational emissions shown in Table 3.7-4 are substantially below the "de minimis" thresholds for ozone precursors established for the region by the Federal Clean Air Act conformity rules. Project operational emissions would not interfere with maintenance of the National Ambient Air Quality Standards and would not require a conformity determination. A summary of operational emissions is provided in Table 3.7-4.

Table 3.7-4
Maximum Operational Project Emissions

Criteria		Reactive Organic Gases (ROG)	Nitrogen Oxides NO_x	Particulate Matter PM_{10}
Maximum Operational Emissions	Tons per Year	0.12	0.85	0.02
Clean Air Act De Minimis Threshold of Significance		100	100	--
Maximum Operational Emissions	Pounds per Day	5.0	34.3	0.7
MBUAPCD Threshold of Significance		137.0	137.0	82.0

Impact AQ-1: Although operation of the proposed project would release ozone precursor and particulate emissions, these emissions would be below federal and state thresholds and would have a less than significant air quality impact. **[Less than Significant Impact]**

[57] Each generator was assumed to develop 750 horsepower. Maximum daily usage for testing and maintenance was assumed to be one hour; annual usage was taken as 50 hours per year (the maximum allowable under MBUAPCD Rule 1010: Air Toxic Control Measure for Stationary Compression Ignition Engines). Assumed emission factors were 0.1 g/bhp-hr for ROG, 6.9 g/bhp-hr for NOx and 0.15 g/bhp-hr for PM.

Odors from Solids Handling

After wastewater goes through the SBR process, the solids that remain (waste activated sludge) would be pumped to an aerate sludge/biosolids storage tank. The sludge will consist of 95 percent water and five percent solids. When the weather is dry, this material will be pumped to one of four lined solids drying beds (refer to Figure 6) where water will be decanted and evaporated. Solids will be dried to about 15 percent solids content and then hauled to a landfill that accepts Class B Solids. The project proposes to turn over the solids in the drying beds as needed to avoid (or limit) the generation of odors. Solids would be removed approximately four times per year following drying cycles.

Odors can be generated during solids drying and handling. The proposed solids beds could generate objectionable odors if not properly aerated and when solids are being removed. With proper solids management, odors will be minimized or eliminated.

The residential neighborhood that includes Everest Drive, Frank's Drive, and David's Drive is located above and to the north of the RM I facility and the solids drying beds. The backyards of four residences on Everest Drive are located within 200 feet of the proposed drying beds. East and southeast of the RM I facility, residences on Marks Drive, roughly between Dots Circle and Bricks Way, are located below the RM I facility and within one-quarter mile of the solids drying beds. The vertical separation between the solids drying beds and residences above and below the RM I facility would tend to limit the concentration of compounds that produce odor, however, residences within approximately one-quarter mile could be exposed to odors from the solids drying beds.

Impact AQ-2: The operation of solids drying beds at RM I following Phase 1 improvements could result in the exposure of sensitive residential receptors to objectionable odors. **[Significant Impact]**

Construction Ozone Precursor Emissions Impacts

Construction emissions shown in Table 3.7-5 are substantially below the "de minimis" thresholds for ozone precursors established for the region by the Federal Clean Air Act conformity rules. Project construction activities would not interfere with maintenance of the National Ambient Air Quality Standards and would not require a conformity determination.

Table 3.7-5
Maximum Estimated Construction Emissions

Criteria		Reactive Organic Gases (ROG)	Nitrogen Oxides NO_x	Particulate Matter PM_{10}
Maximum Construction Emissions (Tons/Year)	Tons per Year	0.77	6.41	2.80
Clean Air Act De Minimis Threshold of Significance		100	100	--
Maximum Construction Emissions (Pounds/Day)	Pounds per Day	6.31	54.98	21.75
MBUAPCD Threshold of Significance		--	--	82.0

Impact AQ-3: Construction equipment and vehicle exhaust during Phase 1 improvements would temporarily emit ozone precursors, but these emissions would be substantially below "de minimus" thresholds of the Federal CAA. **[Less than Significant Impact]**

Construction Particulate Emissions Impacts

Project construction activities could result in fugitive particulate emissions. Fugitive particulate emissions are emitted during unloading of materials, disturbance of the ground, and as a result of wind erosion over exposed earth surfaces. Dust emissions would vary from day to day, depending on the level and type of activity, moisture content of the soil and the weather.

The greatest potential for fugitive particulate emissions would be during construction of the upgrade of wastewater treatment facilities at RM I and RM II. Activities that would create fugitive particulate emissions during this phase of construction would be the installation of new equipment and buildings, delivery and unloading of materials (fill, concrete, etc.), and removal of dried solids from treatment ponds. During later phases of construction equipment the installation of pipelines along existing street alignments would also have a limited potential for fugitive particulate emissions.

Maximum fugitive particulate emissions would occur during the upgrading of wastewater treatment facilities on RM I and RM II. To estimate maximum construction emissions, the URBEMIS-20072 software program was applied to the project, assuming that RM I and RM II construction occurs within a 12-month period. The resulting construction emissions as shown in Table 3.7-4 do not exceed the MBUAPCD significance criterion of 82 pounds per day, indicating that construction dust emissions would be less than significant. However, construction activities would still have the potential to create a localized dust nuisance, which could be significant.

Impact AQ-4: Construction activities and material hauling could temporarily affect local particulate air quality during Phase 1 improvements. **[Significant Impact]**

3.7.3.3 *Air Quality Impacts from Phase 2 Improvements*

Potable Water/Salinity Management Project Impacts

Phase 2 improvements could include demineralization and/or water softening of groundwater from wells, concentrate or sludge management facilities, support facilities (i.e. pumps, transmission pipelines, chemical handling, etc.) The time frame for these improvements would be approximately 2011 to 2040.

Air quality impacts from the implementation of these improvements could include increased particulate and dust impacts from construction, and increased operational impacts from employee travel and generators. Particulate matter could also be generated by wind blowing over evaporation ponds (although the ponds would generally contain water or wet solids). Criteria pollutants could also be emitted by emergency backup generators. Since the exact location and scope of these improvements is unknown, the project could have a significant impact on air quality.

Impact AQ-5: Implementation of the Phase 2 potable water project could have a significant impact on air quality, particularly temporary construction emissions. **[Significant Impact]**

3.7.3 Mitigation and Avoidance Measures

3.7.3.1 *Phase 1 Project-Level Mitigation Measures*

Implementation of the following mitigation measures would reduce **Impact AQ-2**, *Odors from Solids Handling* to a less than significant level.

MM AIR 2-1: An Operations and Maintenance Manual will be prepared as part of the project that will address proper operation and maintenance of all facilities. This manual will include procedures for proper maintenance and operation of the facilities to minimize odor. An Odor Minimization Plan will be prepared and included in this manual. The plan will specifies measures that will be taken to avoid the production of odors at the RM I facility and steps that will be taken if odor complaints are received. The purpose of the Odor Minimization Plan would be to avoid objectionable odors reaching off-site receptors. The plan would include both design features and operational measures to control odors at RM I.

Design and operational measures included in the Operations and Maintenance Manual will include, at minimum:

- **Aeration of Solids Storage Tank.** The solids storage tank will be aerated to avoid the release of objectionable odors and will be maintained with a water cap to further contain potential odor generation. The Operations and Maintenance Manual will include specification of the frequency and timing of aeration of the solids storage tank.

- **Residence Time.** Solids sent to the drying beds will have undergone a 60 to 80 day solids residence time in the SBR and storage tank, resulting in a very stable sludge that will typically have a "musty" odor similar to that of composting organic material.

- **Distribution of Solids in the Drying Beds**. When solids are sent to the drying beds, relatively thin layers of sludge will be distributed to the drying beds, allowing water to be removed and evaporated from the drying areas relatively quickly, which will minimize the areas that stay wet for long periods of time.

- **Aeration and Turning of Solids in the Drying Beds.** As layers of solids build up in the drying beds, District staff will turn and aerate the piles more frequently to ensure that all of the sludge is aerated and not under anaerobic conditions.

- **Protocol for Management of Odors.** The Operation and Maintenance Manual will include a set protocol for on-site management of potential odor problems. Odor suppression chemicals will be used, if needed.

- **Odor Complaints.** The District will designate a contact person who would be responsible for responding to any local complaints about odors from the RM I facility. The contact person will determine the cause of the odor complaint (e.g., anaerobic conditions in solids beds, etc.) and will require that reasonable measures to correct the problem condition be implemented. The telephone number for the contact person at the District (831-637-4670) will be conspicuously posted at the main pump station and gate of RM I and included in a notice sent to neighbors upon completion of construction of the RM I improvements. In addition, to comply with Monterey Bay Unified Air Pollution Control District Rule 402 (Nuisances), the phone number of the MBUAPCD shall be visibly posted to ensure compliance with this rule (831-647-9411).

Implementation of the following mitigation measures would reduce **Impact AQ-4**, *Construction Particulate Emissions* to a less than significant level.

MM AQ-4.1: Construction contractors shall implement a dust abatement program. All construction contracts will require the following:

- Watering shall be used to control dust generation during loading materials onto trucks.
- Cover all trucks hauling debris or soils from the site.
- Water all exposed soil surfaces at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Cover all trucks hauling dirt, sand or loose materials, or maintain at least two feet of freeboard.
- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (Nuisance).

3.7.3.2 *Phase 2 Program-Level Mitigation Measures*

Based on the *Groundwater Management Plan Update*, the following mitigation measures shall be implemented during construction of the future potable water/salinity management project. Implementation of these measures would reduce **Impact AQ-5**, *Potable Water/Salinity Management Project Impacts* to a less than significant level.

MM AQ-5.1: **Air Quality, Dust Control Program**
Prior to construction of evaporation ponds for groundwater treatment concentrate, an effective dust control program will be developed.

MM AQ-5.2: Future projects will prepare a dust abatement program for construction activities, as described in Mitigation Measure MM 4.1, above.

MM AQ-5.3: Future projects will conform to all MBUAPCD requirements for the permitting of backup generators.

3.7.5 Conclusion

Impact AQ-1: Although operation of the proposed project would release ozone precursor and particulate emissions, these emissions would be below federal and state thresholds and would have a less than significant air quality impact. **[Less than Significant Impact]**

Impact AQ-2: The operation of solids drying beds at RM I following Phase 1 improvements could result in the exposure of sensitive residential receptors to objectionable odors. With the adoption of an Odor Minimization Plan and other measures, this impact would be less than significant. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

Impact AQ-3: Construction equipment and vehicle exhaust during Phase 1 improvements would temporarily emit ozone precursors, but these emissions would be substantially below "de minimus" thresholds of the Federal CAA. **[Less than Significant Impact]**

Impact AQ-4: With the implementation of construction mitigation measures, material hauling and construction dust impacts during Phase 1 improvements would be less than significant. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

Impact AQ-5: With the implementation of program-level mitigation measures, impacts from the future potable water project (Phase 2) on air quality would be less than significant. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

3.8 NOISE

3.8.1 Introduction and Regulatory Framework

Noise is measured in "decibels" (**dB**) which is a numerical expression of sound levels on a logarithmic scale. A noise level that is ten dB higher than another noise level has ten times as much sound energy and is perceived as being twice as loud. Sounds less than five dB are just barely audible, and then only in the absence of other sounds. Intense sounds of 140 dB are so loud that they are painful and can cause damage with only a brief exposure. These extremes are not commonplace in normal working and living environments. An "A-weighted decibel" (**dBA**) filters out some of the low and high pitches which are not as audible to the human ear. Thus, noise impact analyses and standards commonly use the dBA.

Because excessive noise levels can adversely affect human activities (such as conversation and sleeping) and human health, federal, state, and local governmental agencies set criteria or planning goals to minimize or avoid these effects. Since the sensitivity to noise increases during the evening and night because excessive noise interferes with the ability to sleep, 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. Noise standards are almost always expressed using one of several noise averaging methods such as **Leq** and **Ldn**. Ldn (also referred to as **DNL**) stands for Day-Night Level and is a 24-hour average of noise levels, with a 10 dB penalty applied to noise occurring between 10:00 p.m. and 7:00 a.m. Leq stands for the Noise Equivalent Level and is a measurement of the average energy level intensity of noise over a given period of time such as the noisiest hour. **CNEL**, or Community Noise Equivalent Level, is another 24-hour average which includes both and evening and nighttime weighting.

3.8.1.1 *Applicable Standards and Policies*

San Benito County General Plan

San Benito County's General Plan identifies noise and land use compatibility standards for various land uses. The County's goal is to: "…protect the health, safety and welfare of San Benito County residents through the elimination of annoying or harmful noise levels."

Figure 10, "Land Use Compatibility for Community Noise Environments," of the Noise Element in the General Plan, indicates that residential uses are considered "Clearly Acceptable" in locations with ambient noise levels up to 60 dBA Ldn and "Normally Acceptable" with noise levels up to 65 dBA Ldn. Golf courses are considered "Clearly Acceptable" up to 60 dBA and "Normally Acceptable" up to 70 dBA.

Goal #4 of the Noise Element is "To Reduce Construction Related Noise Impacts," through the control of the operation of construction equipment at specific sound intensities and frequencies during specified hours, and through encouraging the use of barriers or enclosures for high noise-emission equipment.

3.8.2 Existing Setting

The proposed project site is located within the Ridgemark development, which is a golf course and residential area south of the City of Hollister in an unincorporated area of San Benito County. The RM I and RM II wastewater treatment facilities are located on a ridge at an elevation of approximately 540 feet. The nearest residential uses are located at the County labor camp on Labor Camp Road, approximately 60 feet from RM I (property line to edge of access road) and 150 feet

from RM II. Pond 6 of RM I is approximately 900 feet from the Pinnacles Community School (for students ages 10-18) at 3230 Southside Road. RM I and RM II are situated slightly below the elevation of the nearest residential uses, and Pond 6 is elevated above the labor camp and Pinnacles Community School on a hillside bench (Photos 1-6).

Under existing conditions, the project area is subject to noise from traffic on Airline Highway (SR 25) and other local roadways, as well as aircraft overflights. The nearest railroad track (Union Pacific Railroad) terminates in central Hollister, several miles north of the project site. Airports in the area include the public Hollister Municipal Airport, approximately five miles north of the Ridgemark development; and the private Frazer Lake and Christensen airports (approximately 11 miles north and four miles northeast, respectively). Based on the San Benito General Plan Noise Element (updated 1984), the Ridgemark area is not within the 1984 or projected 2005 noise contours of the Hollister Municipal Airport. The site is not located near substantial generators of noise from the operation of agricultural or industrial machinery, although agricultural land borders the Ridgemark area to the south.

The two Ridgemark wastewater treatment facilities currently generate noise through the operation of pumps and aerators, through testing of the existing diesel back-up generator and other equipment, and through maintenance and operations vehicle activity.

3.8.3 Noise Impacts

3.8.3.1 *Thresholds of Significance*

For the purposes of this project, a noise impact is considered significant if the project would result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, or
- Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels, or
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, or
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, or

The following criteria were used to evaluate the significance of noise impacts:

Land Use Compatibility for Community Noise Events. A significant impact would occur if noise sensitive receivers proposed by the project would be exposed to noise levels exceeding the County's "Normally Acceptable" guidelines for noise and land use compatibility contained in the General Plan (65 dBA Ldn or less). Satisfactory interior noise levels are defined as 45 dBA Ldn or less.

Substantial Increase in Ambient Noise Levels. CEQA does not define what noise level increase would be considered substantial. Typically, an increase of five dBA Ldn or greater would be considered a significant impact when projected noise levels remain within those considered acceptable for the affected land use.

Nearby Sensitive Land Uses

The proposed project site is located within the Ridgemark development, which is a golf course and residential area south of the City of Hollister in an unincorporated area of San Benito County. The

RM I wastewater treatment facilities is located on a ridge at approximately 540 feet elevation. The nearest residential uses are located approximately 60 feet from RM I (property line to edge of access road) and 150 feet from RM II. RM I and RM II are situated slightly below the elevation of the nearest residential uses.

Pond 6 is approximately 230 feet away and elevated above the Pinnacles Community School in a hillside bench, and the school is located approximately 0.4 miles northwest of RM I (Photos 1-6). A temporary access road from RM I to Pond 6 will be used during the construction period when Ponds 2 and Pond 3 are filled. Portions of this road near the western property boundary are within 50 feet of the residential uses (seasonal migrant labor camp) on Labor Camp Road.

The Southside Elementary School is located approximately 0.85 miles southeast of RM I and 1.0 miles southwest of RM II on Southside Road.

3.8.3.2 *Noise Impacts from Phase 1 Project Operations*

The proposed project is implementation of a wastewater system improvement project to meet the long-term treatment and disposal needs of the Sunnyslope County Water District. Under the proposed project, flows from two existing wastewater treatment plants (RM I and RM II) would be combined and the treatment facilities upgraded to accommodate the combined flow and to meet regulatory wastewater treatment requirements. Most of the work would be within the existing boundaries of the RM I and II wastewater treatment facilities, although more than 9,000 feet of recycled water pipelines would be installed within existing roadways throughout the Ridgemark golf course and residential area.

Following implementation of the project, including recycled water pipelines and wastewater treatment facility upgrades, project traffic would be limited to additional employee travel from the District headquarters to the Ridgemark I site for maintenance activities. The distance is approximately 1.5 miles to each facility, and trip generation is estimated at five to ten trips per week. Other new noise sources associated with the project include three new emergency generators that would replace the existing emergency generators and add an additional generator to the RM I site, and which would require periodic testing. New wastewater treatment equipment would also be installed at RM I.

Impact NOISE-1: With the proposed acoustical shielding, operation of the proposed Phase 1 improvements would have a less than significant impact on noise levels in the vicinity. **[Less than Significant Impact]**

3.8.3.3 *Noise Impacts from Phase 1 Project Construction*

Background

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive receptors. Construction noise impacts primarily occur when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction noise lasts over extended periods of time. Where noise from construction activities exceeds 60 dBA Leq and exceeds the ambient noise environment by at least five dBA Leq at noise-sensitive uses in the project vicinity for a duration of one year or more, the impact would be considered significant. In other words, the impact is significant if it is very

loud, louder than existing noise conditions, and if it goes on for too long.

Construction activities generate considerable amounts of noise. Construction-related noise levels are normally highest during the construction of project infrastructure, which requires heavy equipment. Typical hourly average construction-generated noise levels are about 81 dBA to 88 dBA measured at a distance of 50 feet from the center of the site during busy construction periods (e.g., earth moving equipment, impact tools, etc.). Construction-generated noise levels drop off at a rate of about six dBA per doubling of distance between the source and receptor. Shielding by nearby buildings would also result in lower levels at more distant receptors. Construction-related noise levels are normally less during the finishing and landscaping phases. There would be variations in construction noise levels on a day-to-day basis depending on the specific activities occurring at the site.

Phase 1 Project Construction

Project construction is likely to occur in three overlapping phases. The first phase, which would last approximately one year, includes the use of a crane, dump truck, grader, pump, roller, rubber-tired dozer, tractor and water truck, each operating eight hours per day. The majority of the heavy equipment would be operated over a six to eight month period with the actual operation being four to six hours per day, five days per week. An estimated 415 truck deliveries are projected throughout the project construction period to deliver pavement, crushed rock, and concrete (refer to *Section 3.6, Traffic* of this EIR).

During the latter half of the one-year construction period, import of fill would require a total of 1,800 truck loads of imported soil. Eight-hundred truck trips will be required to remove sludge from RM I, Ponds 1 and 2 and RM II, Ponds 1 and 2. About 200 of these 800 truck trips would take place during project construction (following 60 percent completion), and the remainder would take place following the main construction period.

In addition, construction equipment would be used to construct or improve a temporary access road to Pond 6 from RM I. Although most of this access road is an existing dirt track, an approximately 370 foot length of new unpaved road would be constructed across the hillside below Pond 6. This road would be used by trucks and other vehicles accessing Pond 6 to haul soil materials to RM I when Pond 2 and a portion of Pond 3 are filled.

Although the duration of heavy equipment use at the site would likely be less than one year, and residential uses are located at least 90 to 150 feet away from the wastewater facilities[58], construction noise could have a significant temporary construction impact on nearby residential and recreational uses.

Impact NOISE-2: Construction noise during Phase 1 improvements could have a significant temporary impact on nearby residential and recreational uses. **[Significant Impact]**

3.8.3.4 *Noise Impacts from Phase 2 Improvements*

Implementation of potable water supply improvements during the second phase of the project would reduce salinity in the wastewater effluent by decreasing the salinity of potable water used in the District's wastewater service area (specifically total dissolved solids (TDS), sodium, and chloride).

[58] Portions of the temporary access road from RM I to Pond 6 are within 50 feet of some seasonal residential uses (migrant labor camp) on Labor Camp Road.

These improvements could include demineralization and/or water softening of groundwater from wells, and would allow the District to deliver recycled water with lower salinity for irrigation. The time frame for these improvements would be approximately 2011 to 2040.

Noise impacts from the implementation of these improvements could include construction noise, and increased operational noise impacts from employee travel and equipment operation. Since the exact location and scope of these improvements and the proximity of sensitive receptors is unknown, the project could have a significant temporary noise impact.

Impact NOISE-3: Implementation of the future potable water project (Phase 2) could result in a significant noise impacts, particularly temporary construction noise. **[Significant Impact]**

3.8.4 Mitigation and Avoidance Measures

3.8.4.1 *Phase 1 Project-Level Mitigation Measures*

Implementation of the following mitigation measures would reduce **Impact NOISE-2**, *Construction Noise* to a less than significant level.

MM NOISE-2.1:

- Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours of 7:00 a.m. to 7:00 p.m. daily.
- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Unnecessary idling of internal combustion engines shall be strictly prohibited.
- Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by five (5) dBA.
- Utilize "quiet" air compressors and other stationary noise sources where technology exists.
- Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction-related heavy truck traffic in residential areas where feasible.
- Control noise from construction workers' radio to a point that they are not audible at existing residences bordering the project site.
- Designate a "disturbance coordinator" who would be responsible for

responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator will be conspicuously posted at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

3.8.4.2 *Phase 2 Program-Level Mitigation Measures*

The project includes the following program-level mitigation measures from the *San Benito County Groundwater Management Plan Update.*

MM NOISE-3.1: Minimize Nuisance of Noise Generating Equipment

Noise generating equipment, such as pumps and compressors, will be designed to avoid causing a nuisance or disturbance to nearby sensitive receptors, defined as residences, schools, medical facilities, libraries, churches, day care centers, and convalescent homes.

Noise levels at the property line will conform to the following guidelines, developed from federal and state standards:

Noise Standards for Noise Generating Equipment Hourly Equivalent (Leq)		
	Noise Level in Decibels at Property Line	
	7 a.m. - 7 p.m.	**7 a.m. – 7 p.m.**
Noise generating equipment adjacent to or effecting a property used or zoned for residential or other defined sensitive purposes	60	50
Noise generating equipment adjacent to a property used or zoned for commercial purposes	65	65
Noise generating equipment adjacent to a property used or zoned for industrial or other than commercial or residential purposes or defined sensitive uses.	75	75

In addition, future projects with noise generating equipment will be sited and designed so that noise levels, using the 24-hour Day-Night Level (DNL) descriptor, will not exceed 60 dBA DNL in outdoor activity areas for noise sensitive uses. Noise levels will be reduced by incorporating noise reduction technology (acoustical treatments) such as acoustical enclosures and mufflers.

MM NOISE-3.2 Noise Analysis for Existing and Future Conditions Near Noise Sensitive Receptors

A noise analysis that addresses existing and future conditions will be completed by a qualified acoustical consultant prior to the approval of noise

generating projects located in the vicinity of noise sensitive receptors. The noise analysis will identify measures required to conform with the noise guidelines listed in Program-Level Mitigation Measure NOISE-3.1.

3.8.5 Conclusion

Impact NOISE-1: With the proposed acoustical shielding, operation of the proposed Phase 1 improvements would have a less than significant impact on noise levels in the vicinity. **[Less than Significant Impact]**

Impact NOISE-2: Construction noise from Phase 1 improvements could have a significant temporary impact on nearby residential and recreational uses. With the implementation of construction mitigation measures as listed in this EIR, the impact would be reduced to less than significant. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

Impact NOISE-3: Implementation of the future Phase 2 improvements could have a significant noise impacts, particularly temporary construction noise. Implementation of program-level mitigation measures included in the project would reduce these impacts to a less than significant impact. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

3.9 CULTURAL RESOURCES

The following section is based upon a cultural resources report prepared by *Basin Research Associates, Inc.*, in July 2008. As the archaeological literature review may discuss the location of specific archaeological sites, it is considered administratively confidential and is not included in this EIR. The report is on file at the Sunnyslope County Water District offices, where it can be viewed by qualified professionals.

3.9.1 Introduction and Regulatory Framework

3.9.1.1 *Regulatory Context*

Cultural resources are defined as prehistoric and historic archaeological sites, districts and objects; standing historic structures, buildings, districts and objects; and locations of important historic events or sites of traditional/cultural importance to various groups. The analysis of cultural resources can provide valuable information on the cultural heritage of both local and regional populations.

The cultural resources report prepared for the project site is intended to meet applicable federal and state regulatory requirements for historic properties (cultural resources). These regulations require the identification and evaluation of cultural resources that could be affected by the project.

National Historic Preservation Act (NHPA)

To allow the District to apply for State Revolving Fund grants, a report was prepared to demonstrate to the satisfaction of the California State Historic Preservation Officer (SHPO) that the project complies with Section 106 of the National Historic Preservation Act of 1966 (NHPA) and its implementing regulations 36 CFR Part 800. These regulations require a federal agency with jurisdiction over a federal, federally assisted or federally licensed undertaking to take into account the effect of the undertaking on properties listed on or eligible for the National Register of Historic Places (National Register) and prior to approval of an undertaking to afford the Advisory Council on Historic Preservation an opportunity to comment on the undertaking.

Area of Potential Effects (APE): The "Area of Potential Effects" (APE) is defined as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking. In this case, the Area of Potential Effects (APE) for Archaeology consists of the proposed *Ridgemark Wastewater Treatment and Recycled Water Improvements Project* of the Sunnyslope County Water District (SSCWD), located southeast of the City of Hollister. The APE is discontinuous, and the areas of project impact include: (1) RM I and RM II (existing facilities); (2) four possible mixing ponds, and, (3) several miles of proposed recycled water pipelines and pipeline alternatives connecting the mixing ponds and RM I. The built environment consists of existing wastewater treatment facilities that are less than 30 years in age. The adjacent built environment consists of buildings constructed as part of the Ridgemark Golf and Country Club development in the 1990's. All proposed project activities will occur within established wastewater treatment facilities and/or public rights-of-way.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires a lead agency to determine potential impacts on both historical and archaeological cultural resources eligible for the California Register of

Historical Resources (California Register) and mitigate impacts on historically or culturally significant resources located within and near a development project.

3.9.2 Existing Setting

The project wastewater facilities are located within and on the periphery of the Ridgemark Golf and Country Club on the south side of the Airline Highway/State Route 25 and east and south of Southside Road. The golf and country club consists of two 18-hole courses, clubhouses, and accompanying facilities, and over 1,000 single-family residences and condominiums.

3.9.2.1 *Site History*

Prehistoric Resources

Cultural resources are traces of human occupation and activity. In northern and central California, cultural resources extend back in time for at least 9,000 to 11,500 years, with Native American occupation and use of central California extending over 5,000 to 8,000 years and possibly longer. The study area appears to have been situated in a favorable environment for prehistoric use, with water and a variety of ecological niches available for resource exploitation in the alluvial plain, foothills, and bay margins. Habitation sites in the study area appear to have been selected for accessibility, protection from seasonal flooding, and the availability of both food and tool resources.

Archaeological information for the general central California area suggests a slow steady increase in the prehistoric population over time with an increasing focus on permanent settlements with large populations in later periods. This change from hunter-collectors to an increased sedentary lifestyle is due both to more efficient resource procurement as well as to a focus on staple food exploitation, the increased ability to store food at village locations, and the development of increasing, complex social and political systems including long-distance trade networks.

The aboriginal inhabitants of the Santa Clara Valley belonged to a group known as the "Costanoan."[59] In 1770, the Costanoan lived in approximately 50 separate and politically autonomous tribelets with each group having one or more permanent villages surrounded by a number of temporary camps. Tribelet boundaries and village locations are inexact due to incomplete historic records, and they remain a subject of anthropological contention and debate.

Unfortunately, extensive ethnographic data on the Costanoans are lacking and the aboriginal lifeway apparently disappeared by approximately 1810 due to introduced diseases, a declining birthrate, the cataclysmic impact of the mission system and the later secularization of the missions by the Mexican government. Native Americans were transformed from hunters and gatherers into agricultural laborers (and in some cases, craft artisans) and worked with former neighboring groups.

No Native American ethnographic settlements or contemporary Native American use areas have been identified in or adjacent to the project, although settlements have been identified near Mission San Juan Bautista, Hollister, and to the southeast along the San Benito River. A Native American trail appears to have passed through the general study area.[60]

[59] Costanoan is derived from the Spanish word *Costanos* ("coast people" or "coastal dwellers") who occupied the central California coast as far east as the Diablo Range. The descendants of these Native Americans now prefer to be called Ohlone.

[60] The trail proceeded from Elkhorn Slough at Monterey Bay up the Pajaro River, San Juan Creek to San Juan Bautista then to the San Benito River, to Tres Pinos Creek (southeasterly of the project), to Quien Sabe Valley and to Los Banos Creek.

Historic Resources

Hispanic Period: The Spanish philosophy of government in northwestern New Spain was directed at the founding of *presidios* (forts), missions, and *pueblos* (secular towns) with the land held by the Crown (1769-1821) while the later Mexican policy stressed individual ownership of the land. During the Mexican Period (1822-1848) vast tracts of land were granted to individuals (1822-1848).

Spanish explorers in the 1770's were the first Europeans to traverse inland from Monterey Bay northward. The 1774 Palou expedition appears to have been the closest to the project site. The Juan Bautista de Anza National Historic Trail (1776) was authorized by Congress in 1990 and is mapped east of the project site. Mission San Juan Bautista, founded in 1797, was one of seven missions located within Costanoan territory (located about ten miles southwest of the project). This mission, the 15th of the 21 missions founded in California, is located about eight miles west/northwest of the APE, and would have been the mission with the greatest impact on the aboriginal population living in the project vicinity. Prior to the establishment of Mission San Juan, Mission Santa Clara (founded 1777) "recruited" in the study area in the late 1780's and early 1790's. Mission San Carlos Borromeo (or Santa Cruz, founded 1791 on Monterey Bay) also was active in the general study area.

The western third of the APE was situated within the boundaries of Rancho San Justo (St. Justus); the remainder was ungranted. The former rancho was granted to Rafael Gonzales in 1836 who abandoned it and later to General Jose Castro in April 1839. The 34,620-acre Rancho was purchased by Francisco Perez Pacheco (also owner of Rancho Ausaymas and San Felipe) in July 1844 and patented to his heirs in December 1865. No Hispanic Era roads (e.g., El Camino Real), dwellings, or features (corrals, mills, etc.) were situated in or adjacent to the APE.

American Period: San Benito County was created in February 1874 from Monterey County, and named after San Benito Creek. Hollister was established as the county seat, and the county boundaries were later modified with additions from Fresno and Merced counties in the 1880's. Towns grew along major travel routes, with the earliest being San Juan Bautista, approximately eight miles west/northwest of the APE, and San Ysidro (Old Gilroy) approximately 17 miles north.

Towns throughout California grew up along major transportation vectors such as the El Camino Real between towns, missions, and ranchos. The Rancho San Justo was sold by Francisco Perez Pacheco in 1855 to the firm of Colonel William Wells Hollister and Flint Bixby and Company (Dr. Thomas Flint, Benjamin Flint, and Llewelyn Bixby). Hollister was notable for driving 5,000 sheep across the continent in 1853, for his ownership of the Rancho San Justo, and his sheep ranch on the property. Hollister purchased Flint and Bixby's property and in 1868, sold 21,000 acres of the eastern part of the rancho to a group of 50 farmers who formed the San Justo Homestead Association. One hundred acres in the center was reserved for the town of "Hollister" founded in 1868 and named for the illustrious former owner. The Hollister post office was established on January 15, 1869. Even though the Hollister townsite was not on a main stage line (e.g., Old Gilroy and San Juan), a railroad spur was extended from Gilroy (1869) was the most important in the area. As a result, Hollister was designated the county seat of the new county of San Benito. The historic center of Hollister is located approximately 2.5 miles north of the west side of the APE.

In the 1850's and 1860's, San Juan was an exchange station/stopping place on the route between San Francisco and Los Angeles and, slightly later, was along the route between Monterey and Los Banos. San Felipe at the foot of Pacheco Pass was also on the road to Los Banos. In contrast, Hollister was not on a main stage line. Nonetheless, when the Southern Pacific "Coast Line" arrived in the general study area in 1870, a flag stop was established at Hudner north of Hollister and then continued just to

the east of Hollister. A railroad spur was built shortly thereafter to Hollister in 1871 and in 1873 the tracks were extended to and terminated at Tres Piños. The Town of Tres Pinos or "Three Pines" was moved at the time about 4.5 miles northwest from its original location to the junction of State Route 25 and the road to New Idria to take advantage of the arrival of Southern Pacific Railroad. Freight from the Idria mines was shipped from this location until the line was abandoned. The Town of Tres Pinos is located along State Route 25 approximately two miles southeasterly of the east side of the APE, and has been formally recorded as a cultural resource.

By 1870, cattle and sheep ranching were replaced by wheat and later by more intensive farming and stock-raising. The more intensive farming, including orchards in the 1880's and horticulture by 1900, and later row crops required capital investment for irrigation from the 1890's onward along with machinery, fertilizer, and more efficient transportation as well as more agricultural laborers. The planting, cultivating, harvesting, and packing required a large labor force, which was provided by a number of migrant and immigrant worker groups. Hollister is still a ranching center and county seat and still functions as a service center for ranching/farming (especially "fine" hay) and mining products. In addition, Hollister is a focus of contemporary urban growth in the general study area.

3.9.2.2 *Field Survey, and Records and Literature Search*

Records and Literature Search

The identification effort consisted of an archival records and literature search and a field review of the APE. A separate field review of architectural resources was not conducted for this report. The prehistoric and historic site record and literature search for the proposed project covered a radius of one-half mile and was conducted by the California Historical Resources Information System, Northwest Information Center (CHRIS/NWIC), California State University, Sonoma. Reference material from the Bancroft Library, University of California, Berkeley and Basin Research Associates, San Leandro was also consulted.

The Native American Heritage Commission (NAHC) in Sacramento was contacted for information on resources listed on the Sacred Lands Inventory. The NAHC responded that their record search of the sacred lands file "failed to indicate the presence of Native American cultural resources in the immediate project area"[61]

Previous research and archaeological discoveries suggest a low to moderate regional archaeological sensitivity adjacent to or in proximity to flowing water resources based on the existing archaeological data. With the exception of a small alluvial area listed as "High," and patches of land designated as "Low," most of the APE is mapped as "Very Low" for potential buried archaeological sites. The results of the research strongly suggest a very low to low sensitivity for buried and surface prehistoric cultural resources.

Field Survey

An archaeological field survey of the project components within the APE was completed for the proposed project on March 24, 2008. The southern area of RM I was reviewed; however the northern portion was not reviewed since it consisted of existing pond facilities. Similarly, RM II was not field reviewed since it consisted of existing ponds with improvements to be completed within or immediately adjacent to the existing facilities within SSCWD property. The review of the proposed recycled water pipelines and alternatives was completed via vehicle (with intermittent stops to allow

[61] Debbie Pilas-Treadway, California Native American Heritage Commission, February 28, 2008.

for inspections) and a survey of open areas with native soils and to obtain photographs of the alignments and vicinity. The majority of the proposed pipeline routes and alternatives follow the existing 40-foot wide roads through residential areas within and on the periphery of the Ridgemark Golf and Country Club. No evidence of prehistoric or historic archaeological resources was observed during the field review conducted for the proposed project.

3.9.2 Cultural Resources Impacts

3.9.2.1 *Thresholds of Significance*

For this project, a cultural resources impact is considered significant if the project will:

- Cause a substantial adverse change in the significance of a historic resource as defined in CEQA Guidelines, §15064.5, or
- Cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines, §15064.5, or
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or
- Disturb any human remains, including those interred outside of formal cemeteries.

3.9.2.2 *Cultural Resources Impacts from Phase 1 Improvements*

The proposed project is implementation of a wastewater system improvement project to meet the long-term treatment and disposal needs of the Sunnyslope County Water District. Most of the work would be within the existing boundaries of the RM I and RM II wastewater treatment facilities (ponds with aerators and various piping and pumps), and in streets within the Ridgemark Golf Course and Country Club development.

Prehistoric Resources

No known prehistoric, ethnographic, traditional, or contemporary Native American resources have been recorded or identified in or adjacent to the project site, and the field review of the project site did not reveal any evidence of prehistoric archaeological resources. Contact with the appropriate Native American groups also did not identify any prehistoric sites in the project area. Five cultural resource compliance reports on file with the CHRIS/NWIC include portions of the project APE and/or an area adjacent to the APE. The records searches and surveys conducted for these reports were negative for prehistoric and/or significant historic era resources in or adjacent to the APE.

Post-review discoveries of cultural resources shall be treated in accordance with 36 CFR Part 800.13(b). The development of a formal Post-Review Discovery Plan is not recommended due to the low potential for exposing archaeological material within the property.

Despite the lack of any evidence of prehistoric resources, any buried archaeological deposits could contain potentially significant buried prehistoric and/or historic cultural materials, including Native American human remains. Disturbance could result in the loss of integrity of the cultural deposit and subsequent loss of scientific information, which could be a significant impact.

Impact CR-1: Implementation of Phase 1 of the proposed project could have a significant cultural resources impact if buried archaeological deposits or human remains are encountered. **[Significant Impact]**

Historic Resources

No Hispanic or American period dwellings or features have been recorded or identified in or adjacent to the project site, and the field review of the project site did not reveal any evidence of historic archaeological resources. No potentially significant sites have been identified in the project area as a result of research and/or surveys conducted for the proposed project. The project area includes portions of the Ridgemark Golf and Country Club which was constructed in the 1990's.

A separate built-environment field review for architecture (built environment and landscape) was not conducted. However, based on the literature review and existing information about the site, no architectural resources would be affected by the project.

Impact CR-2: The proposed Phase 1 improvements would not cause a substantial adverse change in the significance of a historic or architectural resource. **[No Impact]**

National Historic Preservation Act
Finding of Effect

The Sunnyslope County Water District (SSCWD) has undertaken an identification effort to identify National Register of Historic Places (NRHP) and/or California Register of Historical Resources (CRHR) listed, determined, or eligible historic properties within the proposed project. The findings and conclusions of this report are based on the results of a CHRIS/NWIC records search, review of pertinent documents and previous archaeological field inventories, consultation with the Native American Heritage Commission and an archaeological field survey and review of the project APE.

The regulations implementing Section 106 of the NHPA (36 CFR Part 800) define an effect as any action that would alter the characteristics of the property that may qualify the property for inclusion in the National Register; and, diminish the integrity of a property's location, setting, design, materials, workmanship, feeling or association (36 CFR Part 800.5(a)(1-2)). A determination of "No Historic Properties Affected" is applicable since no historic properties are within or adjacent to the APE that are listed, eligible or appear to be eligible for inclusion on the National Register of Historic Places (36 CFR Part 800.4). The proposed undertaking will not affect any National Register of Historic Properties or adversely affect any historic resources eligible for or listed on the California Register of Historical Resources.

Impact CR-3: The proposed undertaking will not affect any National Register of Historic Properties or adversely affect any historic resources eligible for or listed on the California Register of Historical Resources. **[No Impact]**

3.9.2.3 *Cultural Resources Impacts from Phase 2 Improvements*

Implementation of potable water supply improvements during the second phase of the project would reduce salinity in the wastewater effluent by decreasing the salinity of potable water used in the District's wastewater service area (specifically total dissolved solids (TDS), sodium, and chloride). These improvements could include demineralization and/or water softening of groundwater from wells, and would allow the District to deliver recycled water with lower salinity for irrigation. The time frame for these improvements would be approximately 2011 to 2040.

Cultural resources impacts from the implementation of these improvements could include disturbance of archaeological and historic resources. The exact location and scope of these

improvements is not defined at this time, and therefore, the project could have a significant cultural resources impact.

Impact CR-4: Implementation of the proposed Phase 2 project improvements could have a significant cultural resources impact. **[Significant Impact]**

3.9.3 Mitigation and Avoidance Measures

3.9.3.1 *Phase 1 Project-Level Mitigation and Avoidance Measures*

No project-level mitigation measures are required for development of the proposed project. The proposed undertaking will not affect any National Register of Historic Properties or adversely affect any historic resources eligible for or listed on the California Register of Historical Resources.

Post-review discoveries of cultural resources shall be treated in accordance with 36 CFR Part 800.13(b). The development of a formal Post-Review Discovery Plan is not recommended due to the low potential for exposing archaeological material within the property.

The exposure of any Native American burials shall be handled in accordance with State of California and San Benito County statutes and regulations, including the adopted *San Benito County Groundwater Management Plan Update.* Compliance with Mitigation Measures CR-1.1 and CR-1.2 from this plan, listed below, would reduce any potentially significant impacts when resources are encountered to a less than significant level.

MM-CR-1.1: **Notification if Significant Cultural Materials are Encountered**
In the event any significant cultural materials are encountered, all construction within a radius of 100 feet of the find would be halted, Sunnyslope County Water District and County of San Benito personnel would be notified, and the archaeologist will examine the find and make appropriate recommendations regarding the significance of the find and the appropriate mitigation. Recommendations could include collection, recordation, and analysis of any significant cultural materials.

MM-CR-1.2: **Notification if Human Skeletal Remains Are Encountered**
In the event that human skeletal remains are encountered, the San Benito County Coroner will be notified immediately. Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian Affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of State law and the Health and Safety Code. The District Manager of the Sunnyslope County Water District and County of San Benito personnel will also be notified immediately, as appropriate, if human skeletal remains are found during development.

3.9.3.2 *Phase 2 Program-Level Mitigation Measures*

The following measures, based on the 2004 *Groundwater Management Plan Update*, would be implemented during construction of the future Phase 2 improvements.

MM CR-4.1: **Site-Specific Archive and Literature Search**
A site-specific archive and literature search would be conducted for project sites once they have been selected for construction. An archaeological and architectural field inventory of areas not previous surveyed would also be completed. Appropriate recordation or supplements to existing documentation would be placed on file with the California Historical Resources Information System, Northwest Information Center at California State University Sonoma, Rohnert Park.

MM CR-4.2: **Implementation of Measures to Avoid or Reduce Impacts**
For cultural resources identified as eligible for the National Register of Historic Places/California Register of Historical Resources, measures to avoid or reduce impacts to a less than significant level would be implemented. Preferred mitigation is avoidance of areas of recorded or known significant or potentially significant cultural resources. Mitigation measures would include:

- Mitigation monitoring by a Professional Archaeologist of archaeologically sensitive areas during ground disturbing construction;
- Formal training of construction personnel to recognize, report and avoid cultural resources;
- The flagging and/or fencing of recorded cultural resources within 100 feet of a project for avoidance and protection;
- Construction contract language discussing the potential for significant subsurface archaeological resources and protocols for dealing with unexpected discoveries; and,
- The requirements for the identification, evaluation and treatment of significant unexpected discoveries in accordance with regulatory requirements.

3.9.5 Conclusion

Impact CR-1: With the implementation of mitigation measures to lessen impacts if cultural resources or human skeletal remains are encountered, the proposed Phase 1 improvements would not cause a substantial adverse change in the significance of a prehistoric resource. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

Impact CR-2: The proposed Phase 1 improvements would not cause a substantial adverse change in the significance of a historic or architectural resource. **[No Impact]**

Impact CR-3: The proposed undertaking will not affect any National Register of Historic Properties or adversely affect any historic resources eligible for or listed on the California Register of Historical Resources. **[No Impact]**

Impact CR-4: With the implementation of program-level mitigation measures, the proposed Phase 2 improvements would not cause a substantial adverse change in the significance of a cultural resource. **[Less than Significant Impact with Mitigation Measures Included in the Project]**

3.10 VISUAL AND AESTHETIC RESOURCES

3.10.1 Existing Setting

The project area includes a mosaic of rural and suburban areas bordered by the foothills of the Gabilan and Diablo Ranges. Rural areas range from rolling grasslands to cultivated properties on alluvial plains. Drainage ravines extend from the Ridgemark development towards the valley floor. Some of these drainages support mature woody vegetation, while others are more open in character.

The Ridgemark area is located on a ridge approximately 200 feet above the San Benito River valley, south of the City of Hollister. The Ridgemark golf course and residential area are of varying elevation, and contain a number of mature landscaping trees and shrubs. The large, rolling turfgrass areas of the Ridgemark golf course can be seen along Airline Highway (SR 25) near Fairview Road. The irrigated turfgrass areas at the golf course are bordered by one story residences that are suburban in character. A sparsely wooded riparian corridor borders the golf course and Airline Highway to the northeast.

State Route 25 (Airline Highway) is designated as an "Eligible State Scenic Highway" from State Route 198 in Monterey County north to its junction with State Route 156 in Hollister (no highways in San Benito County are "Officially Designated" at this time.)[62] Views from this roadway generally are of rolling and wooded hillsides and broad agricultural valley areas.

The two wastewater treatment facilities within the Ridgemark area consist of excavated ponds surrounded by unpaved access roads. There are some equipment enclosures, but no buildings at either RM I or RM II. The RM I facility is located at the top of a hill and due to the low relief of the treatment facility, is not visible from nearby roadways such as Southside Road and Marks Drive. Planted trees line the existing access drive and provide screening of the fencing around the facility. RM II is located within the golf course and is not visible from local private streets. Nearby residences are at different elevations (higher or lower) than the two facilities and generally are oriented away from the treatment and percolation ponds. The facilities are also fenced and separated by buffer areas from the surrounding development (Photos 1-6).

3.10.2 Visual and Aesthetic Resources Impacts

3.10.2.1 *Thresholds of Significance*

For the purposes of this EIR, a visual/aesthetic impact is considered significant if the project would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

[62] California Scenic Highway Mapping System, California Department of Transportation, http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm.

3.10.2.2 *Visual and Aesthetic Resources Impacts from Phase 1 Improvements*

Change in Visual Character

The proposed project includes upgrades to the Ridgemark wastewater treatment facilities, and installation of recycled pipelines in existing streets. The project would also install a 2,790 square foot, 26 foot tall operations building at RM I, in addition to the SBR and other equipment. Recycled water distribution facilities at the Ridgemark golf course would utilize an existing irrigation mixing pond and irrigation system. Above ground modifications for the recycled water system at the golf course would be limited to irrigation turnouts (i.e., piping and valving) near the mixing pond.

The proposed operations building is located at the western edge of RM I and may be partially visible from the valley area below. The approximately 2,790 square foot building is similar in size to residences in the vicinity and the mass and scale of the building would not substantially alter views of the area from the west.

Several trees and an area of ruderal grassland may be removed from the hillside below Ridgemark I to facilitate installation of a pipeline from the residential area to the RM I facility, and this hillside may also be used as a temporary construction access. An approximately 370 foot section of hillside below Pond 6 will connect with an existing dirt road and be used as part of a temporary construction access road when soil materials are transported from Pond 6 to RM I to fill in Pond 2 and Pond 3. These areas will be replanted as part of the project, as discussed in *Section 3.4, Biological Resources* of this EIR. Apart from these temporary construction impacts and the new equipment and building at RM I, the visual character of the site would not substantially change following construction.

Neither RM I or RM II are visible from State Route 25, and implementation of the project would not have an adverse impact on a scenic highway.

Impact VIS-1: Implementation of the proposed Phase 1 improvements would not substantially change the visual character or quality of the Ridgemark area. **[Less Than Significant Impact]**

3.10.2.3 *Visual and Aesthetic Resources Impacts from Phase 2 Improvements*

Implementation of potable water supply improvements during the second phase of the project would reduce salinity in the wastewater effluent by decreasing the salinity of potable water used in the District's wastewater service area (specifically total dissolved solids (TDS), sodium, and chloride). These improvements could include demineralization and/or water softening of groundwater from wells, and would allow the District to deliver recycled water with lower salinity for irrigation. The time frame for these improvements would be approximately 2011 to 2040, and subsequent environmental review will be required for construction and operation of the potable water supply project.

Changes to the visual environment from the implementation of these improvements could include new structures enclosing water treatment equipment, well heads, evaporation ponds or drying beds, and other development. It is anticipated that there would be few windows installed on the proposed operation building and wastewater treatment facilities, which would avoid impacts from reflected glare. New facilities would include site lighting to allow for 24 hour access. Since the exact location and scope of Phase 2 improvements are not known, the project could have a significant visual and aesthetic impact through excessive light or blocked views.

Impact VIS-2: Since the exact location and scope of these improvements is not known, the Phase 2 improvements could result in significant impacts on visual and aesthetic resources. **[Significant Impact]**

3.10.3 Mitigation and Avoidance Measures

3.10.3.1 *Phase 2 Program-Level Mitigation Measures*

Based on the *Groundwater Management Plan Update*, the following mitigation measures shall be implemented during construction of the future potable water/salinity management project. Implementation of these measures would reduce **Impact VIS-2**, *Potable Water/Salinity Management Project Impacts* to a less than significant level.

MM VIS-2.1: **Design of New Projects for Compatibility with Nearby Development**
New projects will be designed to be compatible with the mass and scale of nearby development. Structures, such as water treatment facilities, will incorporate design features that reflect the character of nearby development.

MM VIS-2.2: **Avoid Blocking View on Designated Scenic Roadways/Highways**
New projects will be designed to avoid blocking views from State of California designated scenic roadways or highway corridors.

MM VIS-2.3: **Avoid Substantial Alteration of View on Designated Scenic Roadways/Highways**
New drying bed and/or evaporation ponds, and emergency storage facilities will be designed and sited to avoid substantially altering views from State of California designated scenic roadways or highway corridors. Landscaping and berms will be used to limit views of evaporation ponds.

MM VIS-2.4 **Avoid Substantial New Light/Glare on Surrounding Land Uses**
Lighting and building materials at new facilities will be designed to avoid the generation of substantial new light or glare on surrounding land uses.

3.10.4 Conclusion

Impact VIS-1: Implementation of the proposed Phase 1 improvements would result in less than significant visual and aesthetic impacts. **[Less Than Significant Impact]**

Impact VIS-2: Although Phase 2 improvements could have a significant impact on visual and aesthetic resources, compliance with program-level mitigation measures from the *Groundwater Management Plan Update* would reduce these impacts a to less than significant level. **[Less than Significant Impact with Mitigation Incorporated]**

3.11 UTILITIES AND SERVICE SYSTEMS

The following section describes utilities and service systems within the project area with the exception of the local storm water system. Refer to *Section 3.3. Hydrology and Water Quality* for a discussion of storm water runoff.

3.11.1 Introduction and Regulatory Framework

The State Health and Safety Code (Section 116800-116820) and Title 17 of the California Code of Regulations contains specifications to avoid any potential for cross-connections of recycled water lines with potable water supplies. Requirements for recycled water lines include identification of pipe materials, backflow prevention devices, proper air gaps and/or cross-connection control design measures, plus construction specifications for minimum separation between recycled water pipelines and water supply pipelines. These regulations are overseen by the California Department of Public Health and local health agencies (including the County of San Benito Public Health Division), and it is the responsibility of the water supplier to protect the public water supply from contamination by implementation of a cross-connection control program.

3.11.2 Existing Setting

3.11.2.1 *Water Supply*

The project site is located within the Sunnyslope County Water District's (SSCWD) Sphere of Influence and Service Area boundaries for water services (refer to Figure 5). The SSCWD's water service area consists of approximately 5,241 connections with an estimated population of 15,530 persons. Approximately 3,041 acre-feet of potable water was supplied to SSCWD customers in 2007, including approximately 4,514 acre-feet to customers south of Airline Highway. The sources of water supply include local groundwater wells and imported CVP water. Some of the CVP water is treated at the Lessalt Treatment Facility on Fairview Drive, north of Airline Highway. The Lessalt water treatment plant filters CVP water for municipal supply purposes by both the SSCWD and the City of Hollister.[63]

3.11.2.2 *Wastewater Treatment Facilities and Sanitary Sewers*

The SSCWD wastewater service area is shown on Figure 4. The SSCWD wastewater service area has a residential population of approximately 3,000 persons including the Ridgemark Estates development and golf clubhouse/restaurant located approximately three miles southeast of the City of Hollister. Treatment facilities consist of four aerated ponds (two each at RM I and RM II) and six percolation ponds used for disposal of effluent (refer to Figure 3). RM I and RM II percolated approximately 239 acre-feet of effluent in 2007.

The sanitary sewer collection system conveys wastewater to either RM I or RM II for treatment by aeration. A pump station on Marks Drive is used to transport wastewater up to the RM I facility from Marks Drive.

[63] Source: Todd Engineers, *San Benito County Water District Annual Groundwater Report for Water Year 2007* (December 2007), http://www.sbcwd.com/Annual_GW_report_2007.pdf.

3.11.2.3 *Solid Waste*

The San Benito County Integrated Waste Management Department is responsible for oversight of landfill operations in the unincorporated San Benito County. Solid waste disposal within the Ridgemark area is currently provided under contract by Norcal Waste Systems of San Benito County. Norcal provides solid waste, recycling, and yard waste collection in the unincorporated area of San Benito County. Solid waste is disposed of at the John Smith landfill at 2650 John Smith Road, that is the only permitted landfill (a Class III non-hazardous solid waste disposal facility) serving the Hollister area. The John Smith Road Landfill is estimated to have 20 years of remaining capacity.[64]

3.11.2.4 *Electricity and Natural Gas*

Pacific Gas and Electric Company provides electricity and natural gas to the area, including electrical services at the main lift station, RM I, and RM II. Natural gas is distributed through a series of gas distribution lines located within street right of ways.

3.11.3 Utilities and Service Systems Impacts

3.11.3.1 *Thresholds of Significance*

For the purposes of this EIR, a utility and service impact is considered significant if the project would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board; or
- Require or result in the construction of new/expanded water or wastewater treatment facilities, the construction of which could cause significant environmental effects; or
- Require or result in the construction of new stormwater or wastewater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or
- Have insufficient water supplies available to serve the project from existing entitlements and resources, and would require new or expanded entitlements; or
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments; or
- Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Be inconsistent with federal, state, or local statutes and regulations related to solid waste.

3.11.3.2 *Utility and Service Systems Impacts of Phase 1 Improvements*

Implementation of the proposed wastewater treatment and recycled water improvements as a part of Phase 1 would have environmental effects, as discussed throughout this EIR. The potential for significant impacts from the proposed Phase 1 improvements on hydrology and water quality, from seismic and geologic hazards, odors, induced population growth, and from construction activities are addressed in the respective sections of this document.

The following discussion focuses on possible impacts to water supply delivery systems, including

[64] Mandy Rose, Director, San Benito County Integrated Waste Management, Personal Communication to DJP&A, August 15, 2008.

recycled water, and wastewater treatment facilities, as well as solid waste disposal capacity. Impacts to the storm drainage system are discussed in *Section 3.3, Hydrology and Water Quality.*

Impacts to Water Supply

As discussed in *Section 3.3, Hydrology and Water Quality*, the proposed project would upgrade SSCWD facilities to comply with Regional Water Quality Control Board Waste Discharge Requirements for nitrate, ammonia, BOD, and pH. In the long-term this would avoid or limit possible adverse water quality impacts to groundwater supplies used for domestic water supply.

The project would indirectly allow for increased population growth and a corresponding increase in water supply demand. This increased demand would be partially off-set by the use of recycled water at the Ridgemark golf course in the place of groundwater or CVP water supplies. The projected population increase in the SSCWD sanitary sewer service area is 1,929 (approximately 665 additional residences) would result in a demand of an additional 330 acre-feet of potable water per year (Table 3.3-6). This projected increase in potable water demand could be accommodated by the SSCWD, the local water supplier, although additional facilities would need to be constructed. Physical effects of growth inducement, including new water supply infrastructure, are discussed in *Section 4.0 Growth Inducing Impacts.*

The project also includes the use of blended recycled water at the Ridgemark golf course. The recycled water will be treated at RM I to meet Title 22 standards for disinfection of tertiary recycled water to meet the requirement for golf course irrigation. Recycled water from the RM I facility would be piped to a mixing pond on the Ridgemark golf course where the recycled water would be mixed with either groundwater and/or CVP water to meet salinity requirements for irrigation of the golf course. Use of recycled water is only proposed when required to meet agronomic rates and would predominantly occur from April to October.

Recycled water lines will be installed in local streets by the District in accordance with Title 22 requirements. In conformance with Title 17 requirements of the California Code of regulations, a cross-connection control program will be implemented by the District during construction and post-construction periods to assure that there are no cross-connections between the recycled water system and the potable water system that could result in contamination of the public water supply. The components of a cross-connection control program and other measures are outlined in *Section 3.11.3, Mitigation and Avoidance Measures*. With the implementation of regulatory requirements for the use of recycled water, the proposed project would not result in substantial impacts to water supply or water supply infrastructure.

Impact UTIL-1: A cross-connection control program would avoid or reduce the potential for recycled water to impact potable water supplies in the water supply distribution system. **[Less Than Significant Impact]**

Impacts to Wastewater Treatment Facilities and the Sanitary Sewer System

Modifications to the existing wastewater treatment facilities at RM I and RM II include installation of a SBR system, filling several treatment and percolation ponds, installation of a recycled water system, and installation of a solids handling facility. The installation of new equipment would be focused on managing the quality of wastewater effluent for disposal by percolation or use of recycled water for golf course irrigation. As discussed in *Section 4.0, Growth-Inducing Impacts*, the wastewater treatment capacity would not increase beyond that for growth allowed under the San

Benito County General Plan and Growth Ordinance. The project would not require the construction of new wastewater facilities other than those under the proposed project.

The proposed recycled water pipelines from RM I would maintain a separation from existing water supply lines or use approved pipeline materials and installation guidelines from the Department of Public Health (DPH) to minimize public health risks**.** The new sanitary sewer line from the main lift station up slope to RM I will also be separated from any water supply lines and recycled water lines in conformance with DPH requirements and recommendations.

Impact UTIL-2: Physical impacts associated with the construction of new wastewater treatment equipment at RM I, a new pump station at RM II, and installation of recycled water pipelines would be limited to specific construction zones. **[Less Than Significant Impact]**

Impacts to Solid Waste Facilities

Construction: Solid waste generation during construction generally would be limited (e.g., there is no building demolition) and the County encourages diversion efforts to reduce the amount of construction waste going to landfills. Other than the removal of biosolids described below, solid waste generated by Phase 1 construction would be disposed of at the John Smith Landfill, approximately five miles east of Hollister, off Fairview Road.

As a part of construction activities, some or all of the treatment and disposal ponds at RM II would be decommissioned. The treatment ponds would be dried out and solids that have accumulated at the bottom of the ponds would be removed and disposed. Approximately 5,000 tons of biosolids would be generated by decommissioning of two to three ponds at RM I and four ponds at RM II. These materials would be hauled outside the county for disposal as the John Smith Landfill east of Hollister does not accept biosolids.

Operations: Relatively small amounts of post-construction waste would be generated at the operations building in the laboratory and operations building at RM I. During dry periods, solids from the solid storage tank units would be pumped to solids drying beds where water will be decanted and evaporated. Solids will be dried to about 15 percent solids content and then hauled to a landfill that accepts Class B Solids. Annual solids disposal is estimated to be 880 wet tons per year. Solids would likely be removed about four times per year following drying cycles and trucked to a landfill outside San Benito County. RMC has identified 14 landfills within a 100 mile radius of the RM I facility that accept biosolids. Thirteen of these landfills were identified as having over one million cubic yards of capacity, including the Johnson Canyon Sanitary Landfill in Gonzales in Monterey County.[65]

Biosolids were removed from the RM I facility twice in 2005 and 2006. Based upon laboratory results for metals content, biosolids from the RM I facility would not be considered hazardous waste and could be disposed of at one of the listed landfill facilities in the region that accepts Class B Solids. Prior to disposal, biosolids would be tested for heavy metal content.

[65] Source: RMC, *Basis of Design Report Sunnyslope County Water District*, August 25, 2008, based on data obtained from the California Integrated Waste Management Board (CIWMB).

Impact UTIL-3: The Ridgemark area is served by a landfill with sufficient permitted capacity for solid waste disposal, and a number of landfills outside of San Benito County have adequate capacity to accommodate the biosolids generated by operation of RM I. **[Less Than Significant Impact]**

Electricity and Natural Gas

The proposed project improvements would increase the demand on electrical services and would require an upgrade of the electrical services at the main lift station and RM I. Upgrades to electric service equipment would occur within the existing RM I and main lift station facilities and would not result in direct impacts to biological resources, increased stormwater runoff, or other substantial environmental effects. RM II would not require an electrical services upgrade. New back-up generators would be installed at the main lift station, RM I, and RM II (refer to *Section 3.5, Hazardous Materials* and *Section 3.7, Air Quality* for a discussion of the emergency back-up generators). Utility services would also need to be supplied to the proposed operations building at RM I. These upgrades would not exceed the capacity of the electrical services provider to supply the site.[66]

Impact UTIL-4: Implementation of the proposed Phase 1 improvements would require some electrical service upgrades; however, these upgrades would not result in significant environmental effects. **[Less Than Significant Impact]**

3.11.3.2 *Utility and Service Systems Impacts of Phase 2 Improvements*

Phase 2 of the project improvements could include demineralization and/or water softening of groundwater from wells, and would allow the District to deliver recycled water with lower salinity for irrigation. The project would likely be undertaken in two steps, with the first step to include a new well, pump station and pipelines, storage, water softening process, drying beds, and a water softener ordinance. The second step would include groundwater demineralization through reverse osmosis (RO), and blending of this RO water with groundwater. The method to be used for disposal of concentrate produced from these processes is not currently known, but could include evaporation ponds, advanced concentration, and/or deep well injection. Reverse osmosis is an energy-intensive process. The impacts of demineralization on regional energy supplies and greenhouse gas emissions is discussed in *Section 5.0, Cumulative Impacts.*

Impacts to the Water Supply System and Wastewater Treatment Facilities

Impacts to the water supply system and wastewater system would be similar to Phase 1 improvements, with the exception of the amount of recycled water used and reduction in groundwater on CVP water use at the Ridgemark Golf Course. Refer to *Section 3.3, Hydrology and Water Quality* and Table 3.3-1 for a discussion of the impacts on groundwater levels, projected potable water demand at 30 years, and effects on groundwater quality. Physical effects of growth inducement, including new water supply infrastructure, are discussed in *Section 4.0, Growth Inducing Impacts*.

Impact UTIL-5: The proposed project would not require the construction of water or wastewater improvements other than those included in the project. **[Less Than Significant Impact]**

[66] Source: RMC, *Basis of Design Report Sunnyslope County Water District*, August 25, 2008.

Impacts to Solid Waste Facilities

A water softening process would generate a calcium and magnesium precipitate that would be dried through a mechanical dewatering process and/or drying beds. The solids may be used as a soil amendment for agricultural purposes or may be sent to a landfill.

Solids or concentrate from groundwater demineralization would be disposed of at either a landfill if in a solid state, or transported by truck and disposed of at an ocean outfall if still in liquid form. Demineralization of approximately 3,182 acre-feet per year of groundwater[67] could yield approximately 482 acre-feet per year of concentrate. With the range of landfills within 100 miles that could take this material, the project is not anticipated to result in a substantial reduction in permitted capacity at existing landfills.

Impact UTIL-6: The Ridgemark area is served by a landfill with sufficient permitted capacity for solid waste disposal and a number of landfills outside of San Benito County have adequate capacity to accommodate the biosolids and concentrate generated by wastewater and potable water treatment under Phase 2 conditions. Ocean outfalls also have capacity to dispose of liquid concentrate. **[Less Than Significant Impact]**

Impacts to Electricity and Natural Gas Infrastructure

Phase 2 improvements, although not defined at this time, would also require electricity and natural gas for the operation of potable water treatment systems including reverse osmosis and demineralization. Natural gas could be used to assist drying of the concentrate from potable water treatment in-lieu of evaporation ponds. Since the details of Phase 2 improvements are not known, a Program-Level mitigation measure in the GWMP that calls for energy efficient design is listed in *Section 13.12.3* and included in the proposed project. This measure will be considered and incorporated into future design of Phase 2 improvements to limit the demand for electricity and/or natural gas. Local upgrades to existing electric lines or equipment could be required to serve the potable water treatment facility or pumps. Additional environmental review will be required when the location of any new electricity or natural gas infrastructure facilities are determined; however, the installation of new electric service drops or local electric distribution lines are not anticipated to result in substantial physical impacts to the environment.

Impact UTIL-7: Implementation of the proposed Phase 2 improvements are likely to require some electrical service upgrades, however, it is not anticipated that new electrical infrastructure would result in substantial physical impacts to the environment. **[Less Than Significant Impact]**

3.11.4 Mitigation and Avoidance Measures

3.11.4.1 *Phase 1 Project-Level Mitigation Measures*

Although not a significant impact, the following mitigation measure is included in the project and shall be printed on all project plans.

[67] Source of projected groundwater demineralization under Phase II: Gus Yates, *Sunnyslope County Water District: Simulation of Impacts of Wastewater Alternatives on Groundwater Flow and Salinity*, July 2008

MM UTIL 1-1: Cross-Connection of Recycled Water and Potable Water Lines

- There shall be no cross-connections between the potable water supply and pipes containing recycled water.
- The permit holder and users shall provide employee training to assure proper operation of reclamation facilities, worker protection, and compliance with the RWQCB status.
- Piping, valves, and outlets shall be color-coded and marked to differentiate recycled water from domestic or other water, and all recycled water controllers and valves shall be affixed with recycled water notification signs.
- The permit holder and users shall make necessary provisions to inform the public that the liquid being distributed is recycled water and is unfit for human consumption.
- Recycled water lines shall be separated from potable water lines by ten (10) feet in a horizontal direction and one (1) foot in a vertical direction, with the potable line at the higher elevation.
- Specific pressure or dye tests shall be performed to verify that no cross-connections exist between the recycled water and potable water systems.

3.11.5 Conclusion

Impact UTIL-1: A cross-connection control program would avoid or reduce the potential for recycled water to impact potable water supplies in the water supply distribution system. **[Less Than Significant Impact]**

Impact UTIL-2: Physical impacts associated with the construction of new wastewater treatment equipment at RM I, a new pump house at RM II, and installation of recycled water pipelines would be limited to specific construction zones. **[Less Than Significant Impact]**

Impact UTIL-3: The Ridgemark area is served by a landfill with sufficient permitted capacity for solid waste disposal, and a number of landfills outside of San Benito County have adequate capacity to accommodate the biosolids generated by operation of RM I. **[Less Than Significant Impact]**

Impact UTIL-4: Implementation of the proposed Phase 1 improvements would require some electrical service upgrades; however, these upgrades would not result in new significant environmental effects. **[Less Than Significant Impact]**

Impact UTIL-5: The proposed project would not require the construction of water or wastewater improvements other than those included in the project. **[Less Than Significant Impact]**

Impact UTIL-6: The Ridgemark area is served by a landfill with sufficient permitted capacity for solid waste disposal and a number of landfills outside of San Benito County have adequate capacity to accommodate the biosolids and concentrate generated by wastewater and potable water treatment under Phase 2 conditions. Ocean outfalls also have capacity to dispose of liquid concentrate. **[Less Than Significant Impact]**

Impact UTIL-7: Implementation of the proposed Phase 2 improvements are likely to require some electrical service upgrades, however, it is not anticipated that new electrical infrastructure would result in substantial physical impacts to the environment. **[Less Than Significant Impact]**

3.12 ENERGY RESOURCES

This section was prepared pursuant to CEQA Guidelines Section 15126.4(a)(1)(C) and Appendix F (Energy Conservation of the Guidelines), which require that EIRs include a discussion of the potential energy impacts of proposed projects with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

3.12.1 Introduction and Regulatory Framework

Energy consumption is analyzed in an EIR because of the environmental impacts associated with its production and usage. Such impacts include the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.) and emissions of pollutants during both the production and consumption phases.

Energy usage is typically quantified using the British Thermal Unit (Btu).[68] As points of reference, the approximate amount of energy contained in a kilowatt hour (kWh) of electricity, gallon of gasoline, and a cubic foot of natural gas are 3,400 Btus, 123,000 Btus, and 1,000 Btus, respectively. The Btu content of heating oil and diesel is about 139,000 Btu per gallon[69] and Ultra Low Sulfur (No. 2-D) diesel fuel is typically about 130,000 Btu per gallon.[70]

Energy conservation is embodied in many federal, state and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the EnergyStar program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the *California Administrative Code* sets forth energy standards for buildings.

3.12.2 Energy Resources Setting

Total energy usage in California was 8,360 trillion Btu in the year 2005 (the most recent year for which this specific data is available). Of California's total energy usage in 2005, the breakdown by sector was approximately 18 percent (1,516 trillion Btu) for residential uses, 19 percent (1,551 trillion Btu) for commercial uses, 24 percent (2,001 trillion Btu) for industrial, and 39 percent (3,291 trillion Btu) for transportation.[71] This energy was primarily supplied in the form of petroleum, natural gas, coal, nuclear electric power, and hydroelectric power.

Wastewater and water systems, such as those addressed in the proposed project, are among the largest municipal users of energy. They both use energy to operate pumps and treatment equipment. Maintenance of wastewater and water supply facilities also requires the use of fuels in vehicles that transport employees and materials to and from individual sites. Based on the basic characteristics of the project, the two most relevant sources of energy for the wastewater and recycled water project are electricity and diesel and gasoline for vehicle trips. These sources of energy are discussed below.

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[68] The British Thermal Unit (Btu) is the amount of energy that is required to raise the temperature of one pound of water by one degree Fahrenheit.

[69] Source: U.S. Energy Information Administration [http://www.eia.doe.gov/basics/conversion_basics.html], accessed November 8, 2008.

[70] Source: http://www.exxon.com/USA-English/GFM/Products_Services/Fuels/Diesel_Fuels_FAQ.asp, accessed November 8, 2008.

[71] Energy Information Administration, *State Energy Profiles.* [http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=CA#], accessed November 8, 2008.

3.12.2.1 *Electricity*

Electricity consumption in California grew from 250,241 gigawatt hours (GWh) in 2001 to 270,927 GWh in 2004.[72] In 2006, electricity was produced from power plants fueled by natural gas (41.5 percent), coal (15.7 percent), hydro (19 percent), nuclear (12.9 percent), geothermal (4.7 percent), and renewables (four percent). Approximately 78 percent of the electricity was generated within California, with the balance imported from other states, Canada, and Mexico.[73]

California relies heavily on imported electricity from both the Southwest and the Pacific Northwest. By 2016, California utilities will need to procure approximately 24,000 megawatts (MW) of peak resources to replace expiring contracts and retiring power plants, and to meet peak demand growth. This amount would maintain a 15 to 17 percent reserve margin.[74]

Electricity usage in California for differing land uses varies substantially by the type of uses in a building, type of construction materials used in a building, and the efficiency of all electricity – consuming devices within a building. Electricity supply in California involves a complex grid of power plants and transmission lines located in the Western United States, Canada, and Mexico. The issue is complicated by market forces that have become prominent since 1998, when a new regulatory environment commonly referred to as "deregulation" took effect in California. Supply is further complicated by the fact that the peak demand for electricity is significantly higher than the off-peak demand. For example, in August 2004, peak electric demand - due in large part to hot weather - reached a record high of 44,497 megawatts, which is almost double the lowest demand period.[75] The California Independent System Operator continued to deal with record electricity usage in the summer of 2006. Three new peak electricity usage records were set the week of July 17 to July 25, 2006, including a peak demand of 50,538 megawatts.[76]

In 2000-2001, electric demand exceeded supply (or transmission facilities) on various occasions, which required utilities to institute systematic rotating outages to maintain the stability of the grid and to prevent widespread blackouts. Since that time, additional generating capacity has come on-line and upgrades to various transmission lines are occurring.

According to the California Energy Commission's *2007 Integrated Energy Policy Report*, population growth in California is expected to occur at a higher rate in the hotter, drier inland areas as more people move there, which will not only increase the peak demand, but also change the pattern of energy use. For example, inland areas during the summer months will require more air conditioning than coastal areas which will increase peak demand more than overall demand. Energy efficiency and demand response programs, therefore, will become even more important.[77]

Wastewater treatment consumes electricity during three stages: transport to the facility, treatment, and disposal/recycling. The first stage, transporting from the customer to the wastewater treatment facility, requires, on average, about 150 kWh of electricity per million gallons (MG) of influent to pump the water, depending on topography, system size, and age.[78] Unit volume energy requirements for wastewater treatment are highly variable and are dependent on the size of the facility and level of treatment. For example, advanced wastewater treatment with nitrification requires several times

[72] California Energy Commission, *2005 Integrated Energy Policy Report*, Page 47.
[73] California Energy Commission, *2007 Integrated Energy Policy Report*, Pages 24-26.
[74] California Energy Commission, *2005 Integrated Energy Policy Report*, Page 46.
[75] California Independent System Operator, August 11 2004.
[76] California Independent System Operator, July 26 2006, http://www.caiso.com/183e/183ebd4414ad0.pdf
[77] California Energy Commission, *2007 Integrated Energy Policy Report*, Pages 3-4.
[78] California Energy Commission, *California's Water – Energy Relationship*. November 2005, Chapter 3.

more energy than simpler treatment systems. Based on a range of studies, the California Energy Commission identifies 2,500 kWh/MG as the prototypical wastewater treatment energy intensity.[79]

Potable water systems also use energy for transporting and treating water. Electric demand for pumping varies with the distance traveled and elevation changes. In the San Benito County area, embedded electric use associated with CVP water would be relatively greater than local groundwater pumping and conveyance. In addition to conveyance, demineralization of groundwater is an energy intensive water treatment process. Representative energy requirements for potable water include 1,228 kWh/MG for recycled water, 2,915 kWh/MG for groundwater, and 5,217 kWh/MG for a desalting facility in Chino.[80]

3.12.2.3 *Fuel for Motor Vehicles and Motorized Equipment*

Californians consume roughly 16 billion gallons of gasoline and four billion gallons of diesel annually.[81] This represents a 50 percent increase over the amount that was used 20 years ago. The primary factors contributing to this increase are: 1) population growth and more on-road vehicles, 2) low per mile cost of gasoline for the past two decades, 3) lack of alternatives to conventional gasoline and diesel fuels, 4) consumer preference for larger, less fuel-efficient vehicles, and 5) land-use planning that places jobs and housing farther apart without transportation integration. Although gasoline consumption is expected to increase in California by one to two percent each year, Californians used approximately 63 million less gallons of gasoline in 2007 than they did in 2006.[82]

The average fuel economy for the fleet of light-duty vehicles (autos, pickups, vans, and SUVs) steadily increased from about 12.6 miles-per-gallon (mpg) in the mid-1970s to the current 20.7 mpg, in 1985 as a result of federal standards which had not substantially changed in 22 years.[83] In December 2007, the Energy Independence and Security Act of 2007 was signed which mandates a national fuel economy standard of 35 miles per gallon by 2020.[84]

According to the California Energy Commission, if the state takes no further action to reduce the petroleum use and current greenhouse gas regulations remain in place, the demand for gasoline in California will increase to nearly 15.6 billion gallons per years by 2025. The demand for diesel fuel is estimated to grow to 4.9 billion gallons by 2025. Imports of foreign crude oil will increase as in-state and Alaskan supplies diminish. Since California refineries are already operating close to their full capacity, daily imports of refined gasoline and diesel are expected to double over the next 20 years. Unless out-of-state facilities expand, the gasoline and diesel markets will become more volatile, increasing the likelihood of shortages and more prolonged periods of high prices.[85]

It should be noted that the conditions have rapidly changed within the past year related to the increase in fuel cost and the decrease of vehicle miles traveled in the U.S. According to the U.S. Department of Transportation, since last November 2007, Americans have driven 53.2 billion miles less than they did over the same period a year earlier. This is a greater decline compared to the

[79] California Energy Commission, *California's Water – Energy Relationship Prepared in Support of the 2005 Integrated Energy Policy Report Proceeding (04-IEPR-01E)*, November 2005.
[80] California Energy Commission, *California's Water – Energy Relationship Prepared in Support of the 2005 Integrated Energy Policy Report Proceeding (04-IEPR-01E)*, November 2005, Figure 2-2.
[81] California Energy Commission, *2007 Integrated Energy Policy Report*, Page 189.
[82] California Energy Commission, *2007 Integrated Energy Policy Report*, Page 9.
[83] California Energy Commission, *2007 Integrated Energy Policy Report*, Page 200.
[84] The White House, *Energy Security for the 21st Century*, February 20, 2008, http://www.whitehouse.gov/infocus/energy
[85] California Energy Commission, *2007 Integrated Energy Policy Report*, Page 190.

1970's total decline of 49.3 billion miles.[86]

3.12.3 Energy Impacts

For the purposes of this EIR, an energy resource impact would be significant if the project would:

- Use fuel or energy in a wasteful manner; or
- Result in a substantial increase in demand upon energy resources in relation to projected supplies; or
- Result in longer overall distances between jobs and housing.

3.12.3.1 *Discussion of Impacts*

Overview (Phase 1 and Phase 2 Improvements)

Modifications to the existing Ridgemark wastewater treatment system, as a part of Phase 1 improvements, would consume energy during both the construction and operational phases of the project. The construction phase would require energy for site preparation of Phase 1 improvements (grading and filling at RM I and RM II), the manufacture and transportation of building materials for the SBR units, new pumps, and associated structures, and the actual construction of the new facilities at RM I and installation of pipelines and pump station improvements. The operational phase will consume energy for multiple purposes including, but not limited to, wastewater treatment, building heating and cooling, lighting, appliances, and electronics. Operational energy will also be consumed during each vehicle trip associated with construction and maintenance at these SSCWD facilities.

Phase 2 improvements, although not defined at this time, would have similar types of energy requirements for the construction of water treatment facilities, pumps, and distribution pipelines as Phase 1 Improvements. The operation of potable water treatment, such as demineralization, would generate additional energy demand in a relatively energy intensive process. Energy demand for reverse osmosis systems have been decreasing in recent years as equipment design improves. Since the details of Phase 2 improvements are not known, a program-level mitigation measure in the GWMP is listed in *Section 13.12.3* and included in the proposed project. These measures will be considered and incorporated into future design of Phase 2 improvements.

The following discussion of energy impacts focuses on the known and projected use of energy for proposed Phase 1 improvements.

Construction Energy Impacts of Phase 1 Improvements

During construction, the primary energy use would be fuel consumed by construction vehicles and equipment. Vehicles accessing the Ridgemark area and RM I and RM II sites would include delivery trucks for the major treatment equipment, construction worker personal vehicles, and material deliveries. Equipment required for construction may include excavators, concrete pumping equipment, cranes, and compaction equipment (rollers).

Projected construction truck trips for the proposed project include approximately 3,000 round trips. The construction phase would include the transport of earth fill (up to 25,000 cubic yards) to RM I. Some fill may be obtained from Pond #6, north of the main RM I site. Use of fill from this area would incrementally reduce the average trip length and fuel use for this phase of the project.

[86] www.fhwa.dot.gov/ August 14, 2008.

The project would use an existing wastewater facility (RM I) for the proposed Phase 1 wastewater treatment improvements, including treatment processes to meet Title 22 standards for recycled water. This would minimize energy consumption during construction by avoiding the extensive grading and site preparation that would be required at a new site. This is consistent with Cost Effectiveness/Affordability Objective 2 in the GWMP which calls for reducing unnecessary construction of new project elements and maximizing the use of existing facilities.

Operational Energy Use of Phase 1 Improvements

Operational energy would be consumed at the facilities where wastewater treatment is on-going, by pumps that move wastewater and wastewater effluent to and from the RM I facility, other mechanical equipment, and during each vehicle trip associated with maintenance of the proposed facility improvements.

The estimated peak power demand of the RM I facility (including secondary treatment, tertiary treatment, recycled water pumping, influent wastewater pumping from the Main Lift Station and the Ridgemark II transfer pump station) is 231 kW with an estimated annual energy requirement of 1,013,000 (kWH/year) for 128 MG per year of wastewater. Of this total, the Main Lift Station and Ridgemark II transfer pumps to transport wastewater to the facility would be estimated to use approximately 261,300 kWH/year. Transport of recycled water to the Ridgemark Golf Course irrigation mixing pond represents 43,000 kWH/year of the total annual energy use.

Energy Efficiency and Use

Phase 1 improvements are part of a long-term plan to improve the water quality of wastewater effluent and meet regulatory requirements of the RWQCB and agreed to criteria for water quality and salinity management in the San Benito County Portion of the Gilroy-Hollister Groundwater Basin. The proposed improvements have been designed to minimize energy use through an efficient layout.

Under Phase 1, new variable speed pumps would be installed at the Main Lift Station and blowers at RM I. The use of these higher efficiency pumps would reduce energy use and operational costs at the facility. The headworks screen would only actuate when headloss buildout meets a designated threshold. The UV system would operate based on flow to supply on the dose required to meet disinfection requirements.

The proposed project includes a recycled water component and would introduce use of blended water at the Ridgemark golf course. Use of recycled water would reduce overall energy use and demand over time as pumping of groundwater and/or CVP water to meet irrigation demand is reduced.

The operations building at RM I will be constructed to meet the requirements of Title 24 of the California Administrative Code, as it pertains to energy efficiency. Lighting around the operations building would utilize motion sensors to cut down on energy use.

Impact EN-1: The proposed Phase 1 improvements will require increased use of fuel during construction activities and operations. Use of the existing RM I facility for proposed improvements would avoid energy use from development of a new site and recycled water use would avoid energy use from pumping groundwater or CVP water for irrigation. Overall, the Phase 1 project would not result in the inefficient, wasteful or unnecessary consumption of energy. **[Less Than Significant Impact]**

Impact EN-2: Phase 2 improvements are not defined at this time and may include potable water treatment processes that are energy intensive, such as reverse osmosis. Future improvements could involve substantial energy use. **[Significant Impact]**

3.12.3 Mitigation and Avoidance Measures

As discussed above, details of Phase 2 improvements have not yet been identified. The project includes the following program-level mitigation measures that will be considered and incorporated in Phase 2 improvements at the time of Phase 2 project formulation and design.

3.12.3.1 *Phase 2 Program-Level Mitigation Measures*

The following mitigation measure in the *Groundwater Management Plan Update* and incorporated in the proposed project would avoid or reduce potential energy impacts associated with construction of the future potable water/salinity management project.

MM EN-2.1: Energy and water conservation techniques and energy efficiency will be incorporated in all new building and equipment design and procurement, orientation, and construction.

3.12.4 Conclusion

Impact EN-1: The proposed Phase 1 improvements will require increased use of fuel during construction activities and operations. Use of the existing RM I facility for proposed improvements would avoid energy use from development of a new site and recycled water use would avoid energy use from pumping groundwater or CVP water for irrigation. Overall, the Phase 1 project would not result in the inefficient, wasteful or unnecessary consumption of energy. **[Less Than Significant Impact]**

Impact EN-2: With implementation of the program-level mitigation measures included in the project, Phase 2 project improvements would not use fuel or energy in a wasteful manner. **[Less Than Significant Impact with Mitigation Incorporated]**

3.13 PUBLIC SERVICES

3.13.1 Existing Setting

3.13.1.1 *Fire Protection*

The San Benito County Fire Department (which is operated under contract with CalFire, the California Department of Forestry and Fire Protection), serves the unincorporated areas of the County which are not designated as wildland, including the project site.[87] The Ridgemark area is not located within a designated CalFire high-risk "Fire Hazard Severity Zone."[88] The closest fire station to the site is located at 1979 Fairview Road, north of the Ridgemark area.

The County Fire Department provides initial response in certain areas of the City of Hollister under an automatic aid agreement between Hollister and the County of San Benito; in turn, the City provides initial response in areas protected by the County on the western boundaries of the City. The Hollister Fire Department has a mutual aid agreement with the County of San Benito for fire protection in unincorporated areas just beyond the Hollister city limits.[89]

3.13.1.2 *Police Services*

The proposed project area is served by the San Benito County Sheriff's Office for police services, which provides law enforcement throughout the unincorporated areas of the county.[90] The Department consists of eight units and divisions, and is headquartered at 451 Fourth Street in Hollister, approximately four miles northwest of the project site.

3.13.2 Public Services Impacts

3.13.2.1 *Thresholds of Significance*

For the purposes of this EIR, the thresholds of significance for public services impacts are defined as follows:

- The project will result in substantial adverse physical impacts associated with the provision of new physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time, or other performance objectives for any public services, in this case fire and police protection services.

3.13.2.2 *Public Services Impacts from Phase 1 Improvements*

The proposed treatment facility improvements would contain quantities of disinfectants, cleaners, oils, diesel fuel, and other hazardous materials for use in water treatment and emergency power. The proposed facilities and the increased hazardous materials use and storage may incrementally increase the need for fire services at the site. This increase in demand on fire services would not be substantial, however, and would not require additional facilities or personnel.

[87] San Benito County Fire Department, http://www.san-benito.ca.us/departments/calfire/.
[88] CalFire, http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_sanbenito.php, accessed November 10, 2008.
[89] City of Hollister Fire Department, http://www.hollister.ca.gov/site/html/gov/office/fire.asp.
[90] San Benito County Sheriff's Department, http://www.sbcsheriff.org/default.htm.

The wastewater treatment facilities are fenced, which reduces risks related to security and safety at the site. The expansion of facilities in the Ridgemark area under the proposed project would not require additional public safety facilities or personnel.

3.13.2.3 *Public Services Impacts from Phase 2 Improvements*

Phase 2 of the project improvements could include demineralization and/or water softening of groundwater from wells, and would allow the District to deliver recycled water with lower salinity for irrigation. The project would likely be undertaken in two phases, with the first phase to include a new well, pump station and pipelines, storage, water softening process, drying beds, and a water softener ordinance. The second phase would include groundwater demineralization through reverse osmosis (RO), and blending of this RO water with groundwater. The method to be used for disposal of concentrate produced from these processes is not currently known, but could include evaporation ponds, advanced concentration, deep well injection, land fill, or outfall disposal.

Although these improvements may require increased use and storage of hazardous materials, they would likely not require additional fire or sheriff facilities and personnel.

3.13.3 Conclusion

The project does not propose any residential units that would generate demand for schools, libraries, parks, or other similar public services. The proposed project (both Phase 1 and 2) would not result in an increase in demand for fire or sheriff services that would require new facilities in the area. **[No Impact]**

SECTION 4.0 GROWTH-INDUCING IMPACTS

The purpose of this section of an EIR is to disclose whether or not the construction of a project is likely to foster additional growth, either directly or indirectly. This information can be an important factor in a decision to approve a project because such approval can, in turn, lead to additional projects that may have environmental consequences. Projects which could remove obstacles to population growth (such as a major waste water treatment plant expansion) must be considered in this section.

A project could be considered to have growth-inducing effects if it: 1) either directly or indirectly fosters economic or population growth or the construction of additional housing in the surrounding area; 2) removes obstacles to population growth; 3) the induced population taxes existing service facilities such that it requires the construction of new community facilities that could cause significant environmental effects; or 4) encourages and facilitates other activities that could significantly affect the environment, either individually or cumulatively. Growth-related impacts are those that occur later in time or are farther removed in distance, but which are still reasonably foreseeable.

A project's potential to induce growth does not automatically mean that it will result in growth or that growth would have substantial environmental impacts. This potential growth-inducing effect is regulated by local governments in California through the development, adoption, and implementation of land use plans and policies intended to provide for orderly growth patterns and reduce environmental impacts associated with development.

4.1 PLANNED AND PROJECT GROWTH

The SSCWD provides wastewater treatment services within an approximately 1,000 acre area of unincorporated San Benito County. The service area for potable water is larger, approximately 3.5 square miles area, extending north of Airline Highway (Figures 4 and 5).

The proposed project is designed to serve existing land uses and future growth allowed under the County of San Benito General Plan, in accordance with the adopted San Benito County Growth Management System. Based on year 2000 census data, the population served by the SSCWD wastewater treatment services was estimated at 3,000 persons. Population in the area with SSCWD-provided wastewater treatment is projected to increase by 1,929 to approximately 4,929 persons by 2025 (an increase of approximately 64 percent). The proposed modifications to the SSCWD system would allow for service to this projected 2025 population of 4,929, assuming a generation rate of 71 gallons per day per capita.

These above population projections are based on existing County of San Benito land use designations [*Rural Residential* (1 unit/5 net acres) and *Low Density Residential* (1-8 units/net acre)] in the service area and assumed development at an average density of four dwelling units per acre on approximately 114 acres [within the SSCWD Service Area for wastewater treatment]. The actual location and amount of future growth will be regulated by the San Benito Growth Management System and guided by the goals, objectives, and policies of the San Benito County General Plan.

The growth projected by the Association of Monterey Bay Area Governments for the unincorporated area of San Benito County is shown in Table 4.1-1. The population in unincorporated areas of the County is projected to increase by 45%, from approximately 18,600 persons in 2005 to 26,671 persons in 2025.

Table 4.1-1 Population Forecast 2005-2025 San Benito County and Cities						
Area	**2005**	**2010**	**2015**	**2020**	**2025**	**Percent Increase 2005-2025**
Unincorporated	18,600	20,079	21,737	24,720	26,671	43%
Hollister	37,002	40,415	44,613	49,064	54,143	46%
San Juan Bautista	1,722	1,937	2,121	2,356	2,570	49%
Total County	57,324	62,431	68,471	76,140	83,383	45%
Source: AMBAG. *Monterey Bay Area 2008 Regional Forecast Population, Housing Unit and Employment Projections for Monterey, San Benito and Santa Cruz Counties to the Year 2035.* June 2008.						

The proposed project does not anticipate a rate of growth greater than that projected by AMBAG in their 2008 regional forecast.

The California Department of Finance estimates the population of unincorporated San Benito as 18,691 in 2008. According to the Department of Finance, population in the unincorporated areas of the County is projected to grow by approximately 0.9 percent by 2009.[91] The project will not serve a population higher than what is already projected by County of San Benito, AMBAG, and the California Department of Finance.

4.2 GROWTH-INDUCEMENT RESULTING FROM THE PROJECT

The following discussion focuses on the potential for the expansion of existing wastewater facilities to result in physical changes in the environment from development of new housing, employment, or associated infrastructure.

4.2.1 Housing Growth

The project would be growth inducing to the extent that the existing wastewater treatment system currently limits population and economic growth and the improvements to the wastewater treatment system would remove this limitation and allow planned, primarily residential, growth. The allowed growth would be located with the designated SSCWD wastewater service area. Residential growth could occur as intensification, or infill, of development within the Ridgemark Golf and Country Club or on several currently undeveloped sites northwest and southeast of the RM I facility (refer to Figure 4).

4.2.2 Job Growth

Short-term jobs will directly result from the construction phase of the project. It is expected that some of these jobs will be filled by local residents already in the San Benito County area and some of the jobs may be filled with people who temporarily transfer to the area during the construction phase. Given that these are temporary jobs, it would be speculative to assume that these jobs would induce substantial new housing or commercial development.

[91] State of California, Department of Finance, *E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change - January 1, 2007 and 2008*. Sacramento, California, May 2008.

When construction is complete and the proposed RM I facilities and recycling system is fully operational, the District will employ an estimated 19 full-time workers, an increase of two operations and maintenance employees.

4.2.3 Impacts of Induced Growth

One of CEQA's primary purposes in addressing "growth inducing impacts" is to identify the environmental impacts or consequences of growth that results from implementing a project. The new housing induced by implementation of the proposed project would result in indirect, or secondary, impacts. These impacts would primarily occur on or near the Ridgemark Golf and Country Club. The growth induced by the proposed project could contribute to a number of environmental impacts, including the loss of agricultural resources, water quality impacts associated with increased urban runoff, possible impacts to special status species, geologic hazards, traffic congestion, and air pollution emissions affecting air quality. These impacts are discussed below. Mechanisms for avoiding or reducing impacts associated with new development in the SSCWD wastewater service area are included in the County of San Benito General Plan. All future development proposals will be subject to separate project-specific environmental review and implementation of policies in the General Plan may substantially limit the amount of development that could occur in environmentally sensitive areas or on farmland.

4.2.3.1 *Agricultural Resources*

Areas within the Ridgemark Golf Course and Country Club are considered urban lands and additional residential development within Ridgemark would not directly impact agricultural resources or result in farmland conversion.

One area considered for possible future residential development is located southeast of RM I on top of the bluff above the San Benito River. This area is mapped as Prime Farmland by the California Department of Conservation. Development of this area could result in the loss of approximately 36 acres of Prime Farmland.

4.2.3.2 *Air Quality*

Increased air pollutant emissions could occur during construction of new residences and from future vehicle trips of residents. Vehicle usage associated with approximately 1,929 new residents would result in air quality impacts, although this increase in air pollutant emissions have already been assumed as a part of the population projections included in the 2008 Air Quality Management Plan for the Monterey Bay Region.

4.2.3.3 *Biological Resources*

Sensitive habitats, such as oak woodlands and wetlands, are limited in the project vicinity. Impacts to riparian corridors could occur, primarily if new road or utility crossings would be required to serve new residential development. Special status species reported in the project vicinity that could be impacted by future development include California tiger salamander, red-legged frog, and possibly burrowing owl and San Joaquin kit fox. Site and project-specific environmental review would be required to identify habitats and the potential for special status plants or animals to occur on individual sites.

4.2.3.4 *Cultural Resources*

Based upon a cultural resources evaluation prepared for the proposed project, there are no known cultural resources reported in the immediate vicinity of the RM I and RM II facilities or proposed recycled water lines. On future development sites, archaeological deposits could contain potentially significant buried prehistoric and/or historic cultural materials, including Native American human remains. Disturbance during construction could result in the loss of integrity of the cultural deposit and subsequent loss of scientific information, which could be a significant impact. Implementation of policies in the General Plan and existing laws and regulations regarding the protection of unexpected cultural resources could avoid these impacts.

4.2.3.5 *Geology and Soils*

The SSCWD service area located in a seismically active area and portions of the District are within the San Andreas fault zone (Alquist-Priolo Earthquake Fault Zone). Development within the fault zone or on steep hillsides could result in significant geologic hazards. The County of San Benito General Plan and zoning regulations require project-specific environmental review and measures to avoid or reduce significant impacts to the environment. The conformance of future development projects to County General Plan policies could avoid or reduce significant geologic and seismic impacts associated with new growth.

4.2.3.6 *Hydrology and Water Quality*

Potable water for new residences would be supplied by the SSCWD using groundwater and possibly CVP water. The impacts of softening and demineralizing potable water are addressed in this EIR. Based upon the simulation completed as a part of this EIR, projected future growth would not adversely impact groundwater supplies, groundwater levels, or groundwater quality.

Induced residential development could result in increased runoff and surface water quality impacts from additional impervious surfaces associated with development, including building roofs and paved areas.

The County of San Benito General Plan and zoning regulations require project-specific environmental review and measures to avoid or reduce significant impacts to the environment. The NPDES General Construction program also requires implementation of measures to reduce nonpoint source pollution during and after construction of projects over one acre in size. The conformance of future development projects to County General Plan policies and existing regulations could avoid or reduce significant water quality impacts associated with new growth.

4.2.3.7 *Transportation*

New residences would generate new vehicle trips. Traffic from approximately 450 new residences on an estimated 114 acres could contribute to future local traffic congestion. The County of San Benito General Plan and zoning regulations require project-specific environmental review and measures to avoid or reduce significant impacts to the environment. The conformance of future development projects to County General Plan policies could avoid or reduce significant transportation impacts associated with new growth.

4.2.3.8 *Utilities, Public Services and Facilities*

New development would require the extension of utility lines, which could have direct environmental impacts. It also could increase demand for fire service [California Department of Forestry and Fire Protection (CalFire)], public safety service (San Benito County Sheriff's Department), schools, libraries, parks and other services. The new residential growth may not be large enough to trigger the need for new facilities for these public services, however. It is unlikely that the estimated 450 new residences would require new public service facilities. Increased demand for services would result in primarily a fiscal impact.

Conclusion: The project will result in indirect growth inducement by removing wastewater treatment service as an impediment to growth. The growth that is expected to be served by the project, however, is planned and projected growth for the County of San Benito. The impacts of growth served by the proposed wastewater facility improvements potentially include the loss of agricultural resources, air pollution emissions affecting air quality, impacts to special status species, disturbance of buried cultural resources, geologic hazards, traffic congestion, and water quality impacts associated with increased urban runoff. These indirect impacts could also include temporary construction impacts related to air quality, noise and water quality.

The County of San Benito General Plan and zoning regulations require project-specific environmental review and measures to avoid or reduce significant impacts to the environment. The conformance of future development projects to County General Plan policies could avoid or reduce significant environmental impacts associated with new growth; however, some impacts may not be reduced to a less than significant level. The severity of these impacts will depend on the size and location of the induced growth. Since the project will remove an existing impediment to growth and because of the amount of induced growth that could occur, the project would result in a significant growth-inducing impact**. [Significant Impact]**

SECTION 5.0 CUMULATIVE IMPACTS

5.1 INTRODUCTION

Cumulative impacts, as defined by CEQA, consist of two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. Cumulative impacts may result from individually minor, but collectively significant projects taking place over a period of time. Section 15130 of the *CEQA Guidelines* states that an EIR should discuss cumulative impacts "when the project's incremental effect is cumulatively considerable, as defined in section 15065(c)." The discussion does not need to be as detailed as is necessary for project impacts, but is to be "guided by the standards of practicality and reasonableness". The purpose of the cumulative analysis is to allow decision-makers to better understand the potential impacts that might result from approval of past, present, and reasonably foreseeable future projects, in conjunction with the proposed project discussed in this EIR.

The CEQA Guidelines advise that a discussion of cumulative impacts should reflect both their severity and the likelihood of their occurrence. To accomplish these two objectives, the analysis should include *either* a list of past, present and probable future projects or a summary of projections from an adopted general plan or similar document. The effects of past projects are generally reflected in the existing conditions described in the specific sections of this EIR. Therefore, CEQA requires that the impacts of implementing the proposed project be analyzed in conjunction with other related past, current, and probable future projects whose impacts might compound or interrelate with those of the project.

The discussion below addresses two aspects of cumulative impacts: (1) would the effects of all of the pending development listed result in a cumulatively significant impact on the resources in question and, if that cumulative impact is likely to be significant, (2) would the contributions to that impact from the Ridgemark Wastewater Treatment and Recycled Water Improvements Project which is the subject of this EIR be cumulatively considerable.

5.2 DISCUSSION OF CUMULATIVE IMPACTS

The cumulative analysis can only take into account those projects which can reasonably be anticipated. For this analysis, the planning departments of the City of Hollister and the County of San Benito were contacted to obtain a list of approved and pending developments in the project area. The projects listed in Tables 5.2-1 and 5.2-2, together with the project elements identified in this EIR as Phase 1 and 2, are considered "reasonably foreseeable" projects evaluated in this cumulative analysis.

These recently approved or reasonably forseeable projects in the area include the development or redevelopment of sites with residential uses, as well as the development or redevelopment of industrial and commercial uses. While these individual projects may result in significant impacts in particular issue areas, it is assumed that the projects will comply with existing regulations and statutes, and will incorporate mitigation and avoidance measures to reduce potential impacts to a less than significant level, if necessary. For example, all projects are required to incorporate best management practices and comply with local and regional regulations to reduce impacts to water quality to the maximum extent feasible.

Given the nature of these pending and approved projects, as well as their locations near the project

area, the issue areas for which cumulative impacts could be significant include: land use compatibility, agricultural resources, hydrology and water quality, biological resources, air quality, and noise impacts. (The project's potential impact on global climate change is addressed in *Section 5.3*, following this discussion.) These cumulative impacts are addressed in more detail below.

Individual projects listed in this cumulative analysis may have other significant impacts (i.e., noise, cultural resources, visual resources, hazardous materials, geology and soils), but the cumulative projects, including the proposed project, would incorporate mitigation and avoidance measures and comply with existing regulations and statures, resulting in either no impacts or less-than-significant impacts in those areas. Therefore, these issues are not discussed further in this section. Unless otherwise stated, the thresholds of significance used throughout the analyses of cumulative impacts are the same as those listed in *Section 3.0, Environmental Setting, Impacts, and Mitigation* of this EIR.

It should also be noted that San Benito County is currently working on a comprehensive update to its General Plan. This update will include changes to land use designation within the County. To attempt to predict what those changes could be would be speculative. For this reason, the upcoming General Plan update is not included in this cumulative analysis.

Table 5.2-1 Cumulative Project List County of San Benito		
Approved But Not Completely Built Out		
Project Name/Location	**Acres**	**Project Description**
Award Homes Development Project; west of Fairview Road, north of Airline Highway at Union Road.	126	667 housing units as a part of the West Fairview Road Specific Plan Area within the City of Hollister
Gavilan College	80	Gavilan San Benito community college campus, 3,500 full-time equivalent student campus, 35,000 square foot campus related retail, 70 campus related housing units, and athletic fields.
3588 & 3586 Airline Hwy	21	Zone change to go from *RR* zoning to *RM* zoning. Use permit application is for senior cottages.
908 Fox Hill Circle	6.3	Senior unit application.
4343 Airline Highway	10	Requesting exemption from the allocation process through family exemption.
30 Jess Court	0.2	Application to install a barn.
Pending Projects		
Project Name/Location	**Acres**	**Project Description**
Santana Ranch Specific Plan Project; Fairview Road between John Smith Road and Santa Ana Valley Road	241	1,094 housing units, an elementary school, approximately six acres of neighborhood commercial space and approximately 18 acres of parkland
El Rancho San Benito Master Specific Plan; adjacent to Highway 25 at the northern edge of San Benito County.	5,792	6,800 housing units, 127 acres of commercial and retail, institutional facilities, and 3,491 acres of open space, recreation, and agriculture.
Fairview Corners Residential Project	57	214 single-family detached houses.
2000 Santa Ana Valley Road	40	General Plan Amendment from *AR* to *AP*. Increase density from *AR* zone to *AP* zone for future residential subdivision. 8 units (possibly).
North side of Airline Highway and Fairview Road	2	General Plan Amendment from *RR* to *C-2*. Requesting a Zone Change from residential to commercial zoning to construct and operate a 26,000 square foot neighborhood retail (dining, mini-mart, etc.) development.
8400 Airline Highway	75	Commercial recreational, Soccer/softball fields, camping, go-carts, staged events including, concerts, auto shows, hill climbs, drag racing.
4343 Airline Highway		Minor Sub No. 1220-08, two lot family split.
1971 Thomas Road		Special Plan Review No. 08-118, 5,600 square foot storage barn.
500 John Smith Road		Use Permit No. 1009-08, project is for an outdoor amphitheater for 8 summer concerts each summer (July & August)
Scenic Southside Estates		Vesting tentative map for 100+ units

Table 5.2-2 Cumulative Project List City of Hollister		
Approved But Not Completely Built Out: Industrial/Office/Commercial		
Project Name/Location	**Acres**	**Project Description**
1900 Aerostar Way	3.62	10,800 square foot building, first of three.
Carlisle Office Park, Bert Drive	1.5	Four buildings for office and professional use.
Airline/Sunnyslope	0.38	4,039 square foot addition
1971 Airway Drive	15	New 10,240 square foot warehouse building, including office.
1961 Airway Drive	3.29	Warehouse/Industrial
San Felipe Road	1.02	4,853 square foot motel addition (Best Western)
1850 Airway Drive, Lot 10	1.2	New single-story 13,654 warehouse building
Ladd Lane	2.5	12,410 square foot medical office.
Pending: Industrial/Office/Commercial		
Project Name/Location	**Acres**	**Project Description**
Gateway Drive, Lot 3	1.48	88 room hotel (Marriott)
Approved But Not Completely Built Out: Residential		
Project Name/Location	**Units**	**Anticipated Buildout Schedule Calendar Year (CY)**
Award Homes	667	CY 2008: 125/667 Units Buildout anticipated through CY 2015
Anderson Homes	6	CY 2008
Palmtag	2	CY 2008
Intravia Duplex	2	CY 2008
Westside Apartments	11	CY 2008
Valley View 3	9	CY 2008
Valley View 6	5	CY 2008
Hillock Ranch	41	CY 2008
Walnut Park A	5	CY 2008
Walnut Park B	27	CY 2008
La Baig	45	CY 2008
Brigantino	15	CY 2008
Las Brisas 7	3	CY 2008
Las Brisas 8	14	CY 2008
Cerra Vista	20	CY 2008
Eden West	55	CY 2008: 20 units, CY 2009: 35 units
Vista Meadows	72	CY 2009: 72 units
Annotti (Miller Ferriera)	165	CY 2009: 93 units, CY 2010: 77 units
Hillview	25	CY 2009: 25 units
Other		
Hollister Domestic Wastewater System Improvements and Recycled Water Facility Project	--	Wastewater System Improvements: CY 2008 Recycled Water Improvements: CY 2009-2023
Water Supply Improvement Project/Master Plan	--	2008-2023

5.2.1 Cumulative Land Use Impacts

5.2.1.1 *Cumulative Land Use Compatibility*

Approval of the projects under consideration in San Benito County (Tables 5.2-1 and 5.2.-2) plus buildout of the approved projects would result in a substantial development of land within San Benito County, most of which is currently undeveloped land. General plan amendments, zone changes, and (in some cases) annexations would be required to allow the anticipated development.

In terms of the cumulative analysis, land use compatibility can be divided into short-term and long-term impacts. Short-term impacts occur during construction and primarily affect existing sensitive land uses, such as hospitals, schools, and residential development near the construction sites. These impacts include the noise and dust generated by grading and excavation activities as well as the use of heavy machinery. These specific impacts are discussed in greater detail in the subsections of this cumulative discussion.

The RM I and RM II facilities are located in an unincorporated area of San Benito County and future potable water treatment facilities are likely to be located in the general vicinity of the Ridgemark development. As discussed in *Section 3.1, Land Use*, and *3.8, Noise*, the project includes program- and project-specific measures to reduce land use compatibility impacts to a less than significant level. All cumulative projects listed in Tables 5.2-1 and 5.2-2 would be subject to City of Hollister or San Benito County General Plan policies and to required conform to applicable residential and commercial design guidelines that are intended to minimize land use conflicts in the long-term. The compatibility of new development with adjacent land uses and the general character of surrounding areas are considered as a part of the County of San Benito's environmental review process. Implementation of setbacks, buffers, appropriate site design and building orientation, and/or soundproofing will be considered during the site and architectural review process on a project by project basis, depending upon distances to sensitive receptors. Through appropriate site design and review of cumulative projects, land use compatibility impacts such as visual intrusion would be avoided.

The project, and other cumulative development, would not result in significant cumulative land use compatibility impacts.

Impact C-LU-1: The cumulative projects, including the proposed project, would not result in significant cumulative land use compatibility impacts. **[Less Than Significant Cumulative Land Use Impact]**

5.2.1.2 *Cumulative Loss of Agricultural Lands*

Several of the identified cumulative projects, in addition to buildout of land designated for development in the City of Hollister planning area, would result in the conversion of Prime Farmland, Farmland of Statewide Importance or Farmland of Local Importance. The Santana Ranch project would result in the loss of lands mapped as Farmland of Local Importance (approximately 241 acres). One of the cumulative projects (El Rancho San Benito) would result in the loss of lands mapped Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance by the California Department of Conservation. Based upon El Rancho San Benito preliminary plans, most of the loss would be to Farmland of Statewide Importance. This property has approximately 2,290 acres mapped as Farmland of Statewide Importance located in the Flint Hills area west of Hollister and it is unknown at this time how many acres would be developed.

The other listed cumulative projects would not result in the loss of lands mapped Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance by the California Department of Conservation.

Phase 2 of the proposed project, construction and operation of potable water treatment facilities on an approximately 50-acre site, could also result in a loss of ten acres or more of Prime Farmland. Therefore, Phase 2 of the project, along with the cumulative projects, would result in a significant cumulative loss of agricultural land.

Impact C-LU-2: The cumulative projects, including Phase 2 of the proposed project, would result in a cumulative loss of agricultural lands in San Benito County. **[Significant Cumulative Land Use Impact]**

Mitigation Measures for Impacts to Agricultural Resources

There is no established mitigation available that will avoid the impacts to agricultural land should the cumulative projects all be developed at the proposed locations. To provide replacement agricultural land, existing development would need to removed elsewhere in San Benito County and soil quality restored to a condition suitable for agricultural production.

As described in *Section 3.1.3, Land Use Mitigation and Avoidance Measures*, the protection of other existing farmland, such as through the use of agricultural easements or outright purchase, would not be considered mitigation under CEQA because the net result of such actions would still be a net loss of farmland acreage. However, such actions do benefit agriculture by preventing the conversion of otherwise vulnerable farmland to non-agricultural uses.

In San Benito County and elsewhere in the State of California, the total area of mapped farmlands has decreased as farmland is converted to urban uses. In some areas, grazing land or other lands are being brought into production; however, the net effect is a reduction in farmland, including Prime Farmland and Farmland of Statewide Importance.[92] Given the constraints of converting existing developed areas to farmland, cumulative impacts to agricultural resources are considered significant and unavoidable.

5.2.2 Cumulative Hydrology and Water Quality Impacts

5.2.2.1 *Flooding Impacts*

Proposed Phase 1 improvements are not located in a flood plain. The project is not anticipated to result in changes in flood elevations or blockage of flood flows. Runoff from the RM I facility will be collected on site and would not contribute to an increase in cumulative peak stormwater runoff.

Although a specific location has not been identified, the project includes measures to avoid flooding impacts to and from Phase 2 potable water supply facilities. These measures include conformance with FEMA Flood Program Requirements and the appropriate local floodplain ordinance. Pipelines shall be buried, with excess spoils disposed of outside of the 100-year floodplain and pump stations shall be sited outside of the floodplain. Through these measures, the project would not contribute to cumulative flooding impacts.

[92] State of California, Department of Conservation website. [http://www.conservation.ca.gov/dlrp/fmmp/pubs/2002-2004/Pages/FMMP_2002-2004_FCR.aspx], accessed December 22, 2008.

Impact C-HYDRO-1: The proposed project would not contribute to significant cumulative flooding or drainage impacts. **[Less Than Significant Cumulative Hydrology Impact]**

5.2.2.2 *Groundwater Hydrology and Water Quality*

The following discussion is based upon a hydrology memorandum prepared by *Gus Yates, Consulting Hydrologist* in July 2008 ("Sunnyslope County Water District: Simulation of Impacts of Wastewater Alternatives on Groundwater Flow and Salinity"). This report is attached to this EIR as Appendix C.

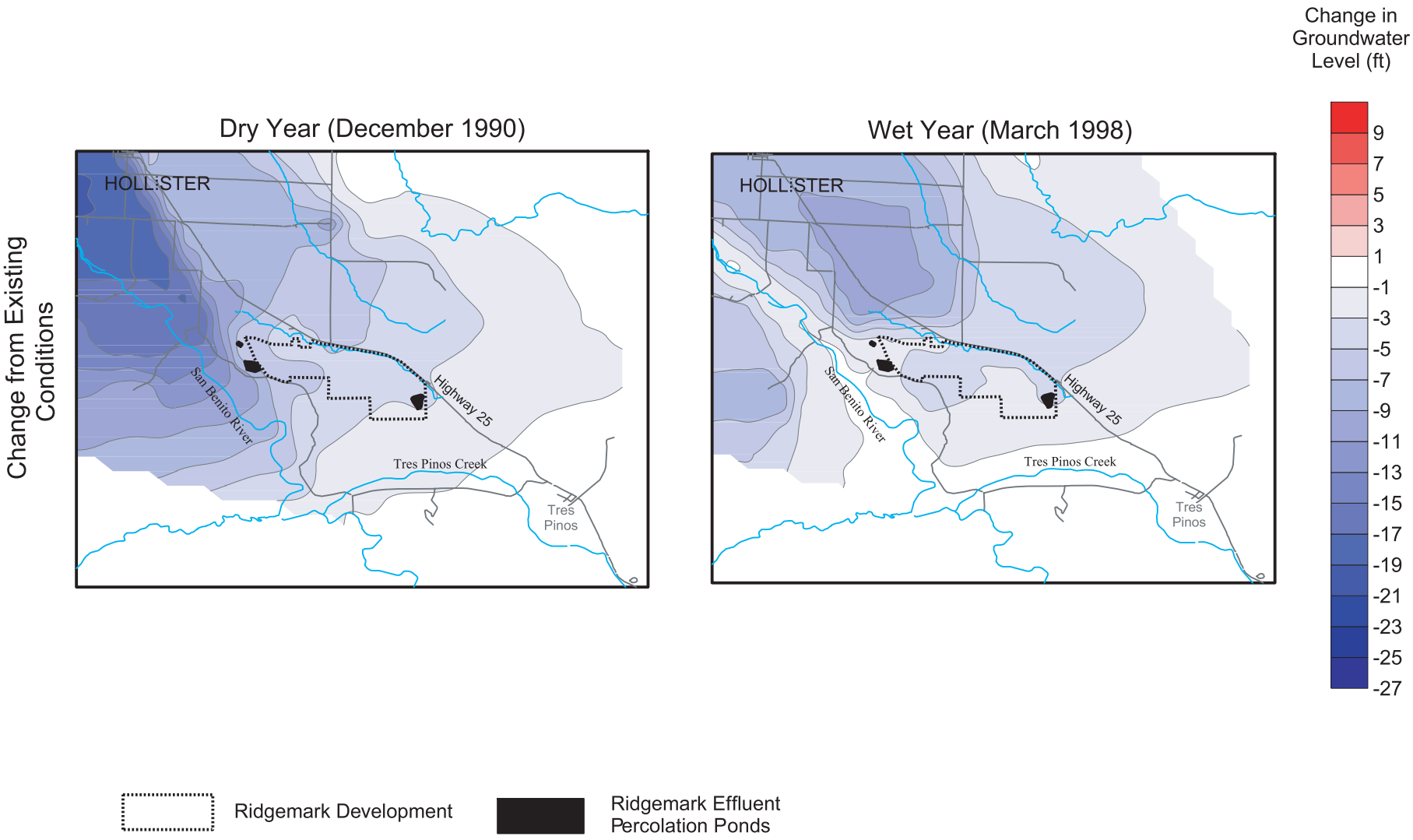
Groundwater levels and groundwater salinity in the project vicinity are anticipated to change over the next 20-30 years as a result of a range of projects and activities. These include changes in land use due to urbanization of agricultural lands and irrigation of previously nonirrigated lands. Most of these land use changes are envisioned in the current San Benito County and City of Hollister General Plans. In addition, increased groundwater pumping by the City of Hollister, demineralization of the City's groundwater supply, and recycling of the City of Hollister's treated wastewater for irrigation of cropland, far from the Ridgemark area, is planned and was considered in modeling of projected groundwater conditions.

In order to assess cumulative impacts, a comparison of the existing (2008) conditions to future conditions in year 30 was made using a regional groundwater flow and transport model. The model (a finite-difference numerical model using the MODFLOW 2000 computer program) covers the entire San Benito County portion of the Gilroy-Hollister Groundwater Basin. Hydrologic conditions considered in the modeling (including, but not limited to, historical rainfall, wet and dry periods, streamflow data, evapotranspiration data, and faults) are discussed in detail in Appendix C. The assumptions for existing conditions and cumulative conditions are described below. The proposed cumulative changes were also compared to the changes with and without the project.

Existing Conditions Simulation: For the simulation of existing conditions, urban and agricultural conditions were assumed to remain the same as they are in 2008. This is consistent with building moratoriums imposed due to insufficient wastewater treatment capacity.

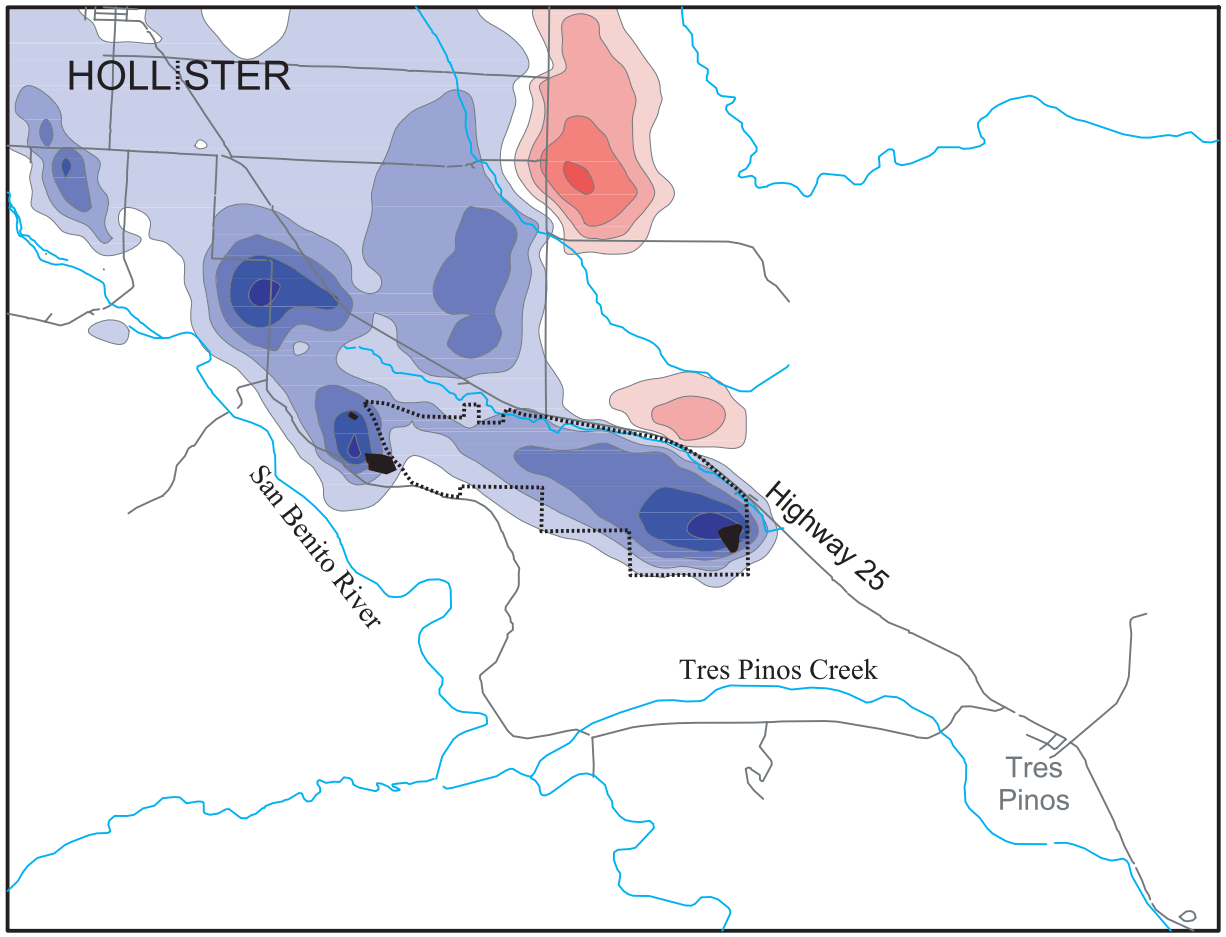
Future Project Conditions Scenario: This cumulative scenario assumes that land use changes envisioned in the San Benito County General Plan are implemented and that selected parcels along the east side of Fairview Road and the north side of State Route 25 shift from nonirrigated grassland to irrigated cropland. This scenario also assumes that the City of Hollister implements its planned water supply and wastewater management plans. These plans include elements similar to the proposed project; recycling of municipal wastewater for irrigation uses and demineralization of groundwater to improve potable (municipal) water quality. For the purpose of this cumulative analysis, it is assumed that recycled water from RM I would offset 206 acre-feet per year (AFY) of groundwater use (decreasing it from 230 to 25 AFY) and 56 AFY of CVP water (decreasing CVP use from 454 to 398 AFY).[93] Flow assumptions for this scenario are shown in Table 3.3-6. Groundwater levels and groundwater salinity under dry and wet years were also considered.

[93] As described in Appendix C, two future conditions scenarios were modeled for the proposed project's contribution to cumulative effects. In the first project scenario, recycled water used at the Ridgemark golf course would offset use of CVP water. In the second project scenario, recycled water used at the Ridgemark golf course would primarily offset the use of local groundwater for irrigation. This second project scenario is presented as the most likely condition to occur. The first project scenario, replacement of recycled water used at the Ridgemark golf course offsetting use of CVP water is presented in Appendix C as Scenario 4A.



CUMULATIVE GROUNDWATER ELEVATION CHANGE AT YEAR 30

FIGURE 18



Compared To Existing Conditions Simulation

Change in Salinity (mg/L)

900
700
500
300
100
-100
-300
-500
-700
-900
-1100

Ridgemark Development

Ridgemark Effluent Percolation Ponds

CUMULATIVE GROUNDWATER SALINITY AT YEAR 30

FIGURE 19

Changes in Groundwater Levels

The existing groundwater table is approximately 200 feet below the ground surface. Contours of the projected cumulative change in groundwater levels relative to existing conditions are shown in Figure 18 for both a dry year and a wet year.

The effects of pumping on groundwater levels tend to spread fairly rapidly over a wide area and the effects of the project and SSCWD activities overlap those of the City of Hollister and other uses. Overall, broad regional groundwater level declines within the Ridgemark development of three to six feet are projected due to increased pumping of municipal groundwater by the City of Hollister and the SSCWD. The project's contribution to changes in groundwater levels is shown on Figure 13. Anticipated future groundwater use and percolation under the proposed project would result in a zero to three foot decrease in groundwater levels in the Ridgemark area.

As previously discussed, the water table is currently approximately 200 feet below the ground surface and the lowering of water levels by three to six feet under cumulative conditions would not adversely impact the operation or yield of nearby wells. Even during droughts, simulated water levels under the proposed project were equal to or higher than historical water levels that occurred as recently as the early 1990s (prior to importation of CVP water). Most existing wells are designed to function properly with groundwater at historically low water levels. The projected cumulative change in water levels would not represent a substantial decrease in groundwater levels or substantial depletion of groundwater supplies.

Impact C-HYDRO-2: The cumulative projects, including the proposed project, would not result in a significant cumulative impact to groundwater levels. **[Less Than Significant Cumulative Hydrology Impact]**

Changes in Groundwater Salinity

Under cumulative conditions, groundwater salinity would decrease with implementation of wastewater recycling and demineralization of potable water supplies in the City of Hollister and in the Ridgemark area under the proposed project. Figure 19 shows the changes in simulated groundwater salinity under cumulative conditions after 30 years. Recycled water used for irrigation (after demineralization of potable water supplies) would have an average salinity lower than that of groundwater. In addition, in the Ridgemark area the salinity of treated wastewater effluent that is percolated at RM I would be reduced by implementation of Phase 2 potable water supply improvements.

Impact C-HYDRO-3: The cumulative projects, including the proposed project, would result in a reduction in groundwater salinity. **[Less Than Significant Cumulative Groundwater Quality Impact]**

Surface Water Quality

The proposed project, and other cumulative projects over one acre in size are required to prepare and implement applicable stormwater pollution prevention plans (SWPPP) and a stormwater management plan (SWMP) consistent with recommended design criteria, in accordance with the National Pollutant Discharge Elimination permitting requirements enforced by the Central Coast Regional Water Quality Board. Each of the approved and pending projects are also subject to individual review and permit requirements of the County of San Benito and the City of Hollister, including grading ordinance requirements. This will reduce the likelihood that the projects

considered in this cumulative analysis would result in a significant erosion and sedimentation of surface waters. Cumulative development consistent with surface water quality policies and regulations would not result in substantial cumulative impacts to surface water quality.

Impact C-HYDRO-4: Cumulative impacts to surface water quality would be reduced to a less than significant level through the implementation of standard stormwater quality measures. **[Less Than Significant Cumulative Water Quality Impact]**

5.2.3 Cumulative Biological Resources Impacts

Build-out of a number of the approved and pending developments listed above would result in the disturbance of natural vegetation and wildlife habitats in Northern San Benito County. Typically, these individual projects would be required to incorporate mitigation measures to reduce impacts to special-status species to a less than significant level, and would be required to comply with state and federal laws and regulations for the protection of special-status species and wetlands.

As discussed in *Section 3.4, Biological Resources*, Phases I and II of the project, could have impacts on several special-status species found in the project vicinity during construction. These species include California tiger salamander, western pond turtle, California red-legged frog, western spadefoot toad, burrowing owl, San Joaquin kit fox, and American badger. Construction of Phase 1 improvements could also disturb nesting raptors and waterfowl. These impacts would be reduced to a less than significant level through the implementation of project- and program-level mitigation and avoidance measures included in the project. The project is not anticipated to impact sensitive habitats, including riparian habitats or oak woodland. Impacts to grassland habitat from trenching for water line installation would be limited.

Therefore, the project would not substantially contribute to or result in a significant cumulative impact on special-status species or other biological resources.

Impact C-BIO-1: The cumulative projects, including the proposed project, would not result in significant cumulative impacts to biological resources. **[Less Than Significant Cumulative Biological Resources Impact]**

5.2.4 Cumulative Traffic and Transportation Impacts

The proposed project would not be a substantial traffic generator. Traffic generated by the project would include construction vehicle traffic and on-going traffic for maintenance and operation of the wastewater treatment, recycling, and potable water treatment facilities. Approximately five to ten additional employee trips per week may be required for operation and maintenance of the wastewater facilities. This low number of additional trips would not result in a substantial increase in traffic in relation to the existing area traffic, and would not cause additional impacts at neighboring intersections.

While the cumulative development in Tables 5.2-1 and 5.2-2 could result in cumulatively significant traffic impacts, the project's contribution to transportation impacts is not cumulatively considerable.

Impact C-TRAN-1: The proposed project would not make a cumulatively considerable contribution to cumulative transportation impacts. **[Less Than Significant Cumulative Traffic and Transportation Impact]**

5.2.5 Cumulative Air Quality Impacts

Projects are evaluated for cumulative impacts both by determining the consistency of the proposed project with the applicable regional air quality plan and the specific project's individual impacts to air quality.

The Monterey Bay Unified Air Pollution Control District (MBUAPCD) CEQA Guidelines provide that a consistency analysis and determination serves as an assessment of the cumulative impacts of a project on regional air quality. If emissions from a project are determined to be inconsistent with or not accommodated by the Air Quality Management Plan (AQMP), it is considered to have a significant cumulative air quality impact. MBUAPCD Rule 216 requires that new or modified wastewater treatment facilities be consistent with the adopted AQMP. Consistency of wastewater treatment facilities is determined by comparing project forecasts for the proposed service area with the applicable AQMP forecasts.

The MBUAPCD *2008 Air Quality Management Plan for the Monterey Bay Region* (AQMP) addresses attainment of the State ozone standard. MBUAPCD has included emissions related to population growth in the AQMP using projections adopted by the Association of Monterey Bay Area Governments (AMBAG). For this project, consistency with District population forecasts is determined by comparing the wastewater service area population at the year of project implementation (2025) with the appropriate forecast increment for the jurisdiction that the project is located (i.e., San Benito County). Projects or plans that would not cause the estimated cumulative population to exceed forecasts are considered consistent with air quality planning efforts. According to AMBAG, this project is consistent with the 2008 regional forecasts for San Benito County and the *Air Quality Management Plan.* A letter from AMBAG documenting the consistency determination is included in Appendix F.

As described in *Section 3.7, Air Quality*, the project's direct and indirect emissions of ozone precursor pollutants would be below MBUAPCD significance thresholds. Therefore, project emissions are not anticipated to affect attainment and maintenance of ambient air quality standards for ozone. Short-term impacts to air quality from construction and odor impacts would be less than significant with mitigation. These impacts are anticipated to be localized and not cumulatively contribute to other air quality impacts in the project area.

The project consists of a wastewater treatment system upgrade and future potable water project that were found by AMBAG to be consistent with the 2008 regional forecasts and the *Air Quality Management Plan*; therefore, it would not conflict with regional efforts to attain and maintain ambient air quality standards. As a result, the proposed project is not anticipated to contribute significantly to a cumulative air quality impact.

Impact C-AQ-1: The cumulative projects, including the proposed project, would not result in cumulatively significant impacts on regional or local air quality. **[Less Than Significant Cumulative Air Quality Impact]**

5.2.5 Cumulative Noise Impacts

Construction Noise

The construction of the cumulative projects in Table 6.2-1 would result in short-term noise impacts at various locations throughout the area. The cumulative project sites are scattered throughout the City and beyond, their construction schedules are different, and their construction is likely to occur over

the next several years. In addition, projects would generally be required to implement standard requirements such as limiting hours of construction to reduce construction noise impacts, particularly within the City of Hollister. Given these factors, the cumulative construction noise associated with the pending projects would not result in a significant impact.

Impact C-NOISE-1: The proposed project, along with other cumulative projects, would not result in significant cumulative construction noise impacts in the project vicinity. **[Less Than Significant Cumulative Noise Impact]**

5.3 DISCUSSION OF CUMULATIVE GLOBAL CLIMATE CHANGE IMPACTS

5.3.1 Introduction and Background

This section provides a general discussion of global climate change and focuses on emissions from human activities that alter the chemical composition of the atmosphere. The discussion on global climate change and greenhouse gas emissions is based upon the California Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32), the 2006 Climate Action Team (CAT) Report to Governor Schwarzenegger and the Legislature, and research, information and analysis completed by the International Panel on Climate Change (IPCC), the United States Environmental Protection Agency, California Air Resources Board and the CAT. Estimates of greenhouse gas emissions for several components of the project are provided in Appendix E of this EIR.

Global climate change refers to changes in the Earth's weather including temperature, precipitation, and wind patterns. Global temperatures are affected by naturally occurring and anthropogenic-generated (generated by mankind) atmospheric gases, such as carbon dioxide, methane, and nitrous oxide.[94] These gases allow sunlight into the Earth's atmosphere, but prevent heat from radiating back out into outer space and escaping from the earth's atmosphere, thus altering the Earth's energy balance. This phenomenon is known as the "greenhouse effect."

5.3.1.1 *Human Influence on Climate*

The world's leading climate scientists have reached consensus that global climate change is underway, is "very likely" caused by humans, and hotter temperatures and rises in sea level "would continue for centuries," no matter how much humans control future emissions. A report of the Intergovernmental Panel on Climate Change (IPCC) – an international group of scientists and representatives concludes "The widespread warming of the atmosphere and ocean, together with ice-mass loss, support the conclusion that it is extremely unlikely that global climate change of the past 50 years can be explained without external forcing, and very likely that it is not due to known natural causes alone."[95]

Human activities have exerted a growing influence on some of the key factors that govern climate by changing the composition of the atmosphere and by modifying vegetation. The concentration of carbon dioxide in the atmosphere has increased from the burning of coal, oil, and natural gas for energy production and transportation and the removal of forests and woodlands around the world to provide space for agriculture and other human activities. Emissions of other greenhouse gases, such

[94] IPCC, 2007, *Summary for Policymakers*. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: http://www.ipcc.ch/.

[95] *Climate Change 2007 - The Physical Science Basis Contribution of Working Group I to the Fourth Assessment Report of the IPCC*. February 2, 2007. (http://ipcc-wg1.ucar.edu/wg1/wg1-report.html.

as methane and nitrous oxide, have also increased due to human activities. Carbon dioxide accounts for approximately 85 percent of total emissions from human sources, and methane and nitrous oxide account for almost 14 percent. Each of these gases, however, contributes to global warming at a different relative rate. Methane has a global warming potential 23 times that of carbon dioxide, while nitrous oxide is 296 times that of the same amount of carbon dioxide. To account for these differences, estimates of greenhouse gas emissions are often described in terms of carbon dioxide equivalents.

The IPCC predicts a temperature increase of between two and 11.5 degrees Fahrenheit (F) (1.1 and 6.4 degrees Celsius) by the end of the 21st century under six different scenarios of emissions and carbon dioxide equivalent concentrations.[96] Sea levels are predicted to rise by 0.18 to 0.59 meters (seven to 23 inches) during this time, with an additional 3.9 to 7.8 inches possible depending upon the rate of polar ice sheets melting from increased warming. The IPCC report states that the increase in hurricane and tropical cyclone strength since 1970 can likely be attributed to human-generated greenhouse cases.

On a per-person basis, greenhouse gas emissions are lower in California than most other states; however, California is a populous state and the second largest emitter of greenhouse gases in the United States and one of the largest emitters in the world.[97] Transportation is the largest source of greenhouse gas emissions in California, followed by industrial sources and electric power generation.[98]

According to the 2006 Climate Action Team Report[99] the following climate change effects and conditions can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the state's water supply;
- Increasing temperatures from eight to 10.4 degrees Fahrenheit (F) under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas;
- Coastal erosion along the length of California and sea water intrusion into the Sacramento River Delta from a four-to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;
- Increased challenges for the state's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta; and
- Increased electricity demand, particularly in the hot summer months.

[96] IPCC, 2007, *Summary for Policymakers*. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf.
[97] California Legislative Analyst's Office, 2006, *Analysis of the 2006-07 Budget Bill (Governor's Climate Change Initiative).* http://www.lao.ca.gov/analysis_2006/resources/res_04_anl06.html.
[98] California Environmental Protection Agency, 2006, *Climate Action Team Report to Governor Schwarzenegger and the Legislature,* http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT.PDF.
[99] California Environmental Protection Agency, 2006, *Climate Action Team Report to Governor Schwarzenegger and the Legislature,* http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT.PDF.

5.3.2 Regulatory Context for Global Climate Change

Global climate change resulting from greenhouse gas emissions is an emerging environmental concern being raised and discussed at the international, national, and statewide level. At each level, agencies are considering strategies to control emissions of gases that contribute to global warming.[100] Regulatory efforts in California that apply to the project are summarized below.

5.3.2.1 *State of California Executive Order S-3-05*

In June 2005, the Governor of California signed Executive Order S-3-05 which identified Cal/EPA as the lead coordinating State agency for establishing climate change emission reduction targets in California. A "Climate Action Team", a multi-agency group of state agencies, was set up to implement Executive Order S-3-05. Under this order, the state plans to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050. Greenhouse gas emission reduction strategies and measures to reduce global warming were identified by the California Climate Action Team in 2006.[101]

5.3.2.2 *Assembly Bill (AB) 32 -- The California Global Warming Solutions Act of 2006*

Subsequently, in the fall of 2006, California Assembly Bill 32 (AB 32), the global warming bill, was signed into law. AB 32 (California Health and Safety Code Section 38500 et seq.) requires the state Air Resources Board (ARB) to adopt regulations by set dates to require reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with that program. The bill requires achievement by 2020 of a statewide greenhouse gas emissions limit equivalent to 1990 emissions, and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions.

Strategies identified by ARB to reduce greenhouse gas emissions include, but are not limited to, new vehicle emission standards, enforcement of diesel truck anti-idling requirements, capture of more methane from landfills, hydrofluorocarbon (HCF) reduction strategies for the use and disposal of refrigerants, manure management in agricultural operations, and increased use of alternative, low-carbon fuels.

As part of implementation of AB 32, a statewide 1990 Greenhouse Gas Emissions inventory and 2020 Emissions Limit were adopted by the ARB in 2007. ARB's mandatory reporting regulation was approved by the Board in December 2007, and became effective on December 2, 2008. Starting in 2009, facilities in several key industrial sectors, such as electricity generation, petroleum refineries and cement manufacturing, are required to report greenhouse gas emissions. The ARB also approved another key requirement of AB 32, the *Climate Change Scoping Plan*, on December 11, 2008.[102] The *Scoping Plan*, developed by ARB with input from the Climate Action Team, proposes a

[100] On April 2, 2007, the United States Supreme Court issued a 5-4 decision in *Massachusetts v. EPA*, which holds that the U.S. Environmental Protection Agency has authority under the Clean Air Act to regulate greenhouse gas emissions from new vehicles. The U.S. EPA had previously argued it lacked legal authority under the Clean Air Act to regulate greenhouse gases. The majority opinion of the Supreme Court decision noted that greenhouse gases meet the Clean Air Act's definition of an "air pollutant," and the EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.

[101] California Environmental Protection Agency, 2006, *Climate Action Team Executive Summary Climate Action Team Report to Governor Schwarzenegger and the California Legislature.*, http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT_EXECSUMMARY.PDF.

[102] California Air Resources Board, http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm, accessed December 15, 2008.

comprehensive set of actions designed to reduce overall carbon emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, and enhance public health while creating new jobs and enhancing the growth in California's economy. The ARB is currently working on additional regulations to implement the *Scoping Plan*. Regulations to obtain the maximum technologically feasible and cost-effective reductions in greenhouse gases are to be adopted by January 1, 2011.

5.3.2.3 *Senate Bill 97 -- Modification to the Public Resources Code*

On August 24, 2007, Governor Schwarzenegger signed SB 97 which requires the Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, including, but not limited to effects associated with transportation or energy consumption. The Resources Agency is required to certify and adopt these guidelines by January 1, 2010.

Currently there is no established guidance, from the state or in published CEQA case law, for the determination of what constitutes a significant global climate change impact or what measures are necessary to off-set new greenhouse gas emissions.

At the direction of the Governor's Office of Planning and Research, ARB is currently developing recommendations for statewide interim thresholds of significance for greenhouse gas emissions. ARB is focusing on common project types that, collectively, are responsible for substantial greenhouse gas emissions – specifically industrial, residential, and commercial projects. Ongoing workshops are planned in March 2009 to discuss further development of concepts introduced in its *Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (CEQA).*

Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emissions

OPR has drafted amendments to the CEQA Guidelines for greenhouse gas emissions as required by Senate Bill 97 (SB 97). OPR held two workshops in January 2009 to present the amendments and obtain input from the public. Comments received on the amendments are currently being considered by OPR as part of the process for adopting the regulations by 2010. Under the *Preliminary Draft CEQA Guideline* amendments, changes to the CEQA Guidelines address determination of a project's incremental contribution to a cumulative effect, determining the significance of impacts from Greenhouse Gas Emissions, consistency with plans, mitigation measures related to greenhouse gas emissions, and tiering from an environmental impact report (EIR). In the proposed CEQA Guideline changes, Lead Agencies would retain discretion to establish thresholds of significance based on individual circumstances.

5.3.2.4 *Senate Bill 375 -- Redesigning Communities to Reduce Greenhouse Gases*

SB 375 encourages housing and transportation planning on a regional scale, in a manner designed to reduce vehicle use and associated greenhouse gas emissions. It requires the California Air Resources Board (ARB) to set regional targets for the purpose of reducing greenhouse gas emissions from passenger vehicles for 2020 and 2035. Once plans and strategies are in place to meet the SB 375 targets, certain projects in these regions can be relieved of specific review requirements of the California Environmental Quality Act. The targets apply to the regions in the State covered by the 18 metropolitan planning organizations (MPOs), including the Association of Monterey Bay Area Governments (AMBAG) for San Benito, Monterey, and Santa Cruz Counties. AMBAG is currently

developing a plan which would reflect planned and proposed projects within the region.

SB 375 requires MPOs to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan that sets forth a vision for growth for the region while taking into account transportation, housing, environmental, and economic needs. The SCS will be the blueprint by which the region will meet its GHG emissions reductions target if there is a feasible way to do so. The MPOs also will be required to prepare an alternative planning strategy with alternative development patterns, infrastructure, or additional transportation measures or policies to meet identified targets.

Per SB 375, the ARB appointed a Regional Targets Advisory Committee (RTAC) on January 23, 2009, to provide recommendations on factors to be considered and methodologies to be used in ARB's target setting process. The RTAC may consider any relevant issues, including, but not limited to, data needs, modeling techniques, growth forecasts, the impacts of regional jobs-housing balance on interregional travel and greenhouse gas emissions, economic and demographic trends, the magnitude of greenhouse gas reduction benefits from a variety of land use and transportation strategies, and appropriate methods to describe regional targets and to monitor performance in attaining those targets. The RTAC is required to provide its recommendations in a report to ARB by September 30, 2009. ARB must propose draft targets by June 10, 2010, and adopt final targets by September 30, 2010.

5.3.2.5 *Sunnyslope County Water District Policies and Programs*

Policies, programs, and regulations of the SSCWD include measures to reduce water use within the District. Saving water saves the energy used to convey, treat, and distribute water, and consequently reduces greenhouse gas emissions associated with the generation of electricity.

The Sunnyslope County Water District Board of Directors passed Ordinance #45 in 1990 following years of drought in California.[103] The ordinance prohibits water waste and non-essential uses of water, which are described as follows:

- Indiscriminate or excessive water use, which results in water waste,
- Washing of cars, buildings, or exterior surfaces without the use of a quick-acting, positive shut-off nozzle,
- Use of potable water to irrigate turf, lawns, gardens, or ornamental landscaping between 9:00 a.m. and 5:00 p.m. by means other than drip irrigation or hand watering with a quick-acting, positive shut-off nozzle,
- Use of potable water to wash sidewalks or roadways when the use of airblowers or sweeping would provide a reasonable alternative,
- Allowing water waste caused by easily correctable leaks, breaks, or malfunctions, after a reasonable time within which to correct the problem,
- Operation of decorative fountains, even if they use recirculating systems,
- Use of water for construction purposes, such as consolidation of backfill, except when no other method can be used,
- Restaurant water service unless upon customer request,
- Hydrant flushing, except where required for public health and safety,
- Refilling existing private pools, except to maintain water levels.

[103] Sunnyslope County Water District, http://www.sscwd.org/conserve.html, accessed December 21, 2008.

In addition, as a member of the San Benito County Water Resources Association, the SSCWD provides information and assistance on water conservation to residents and customers. Water conservation programs include rebates on replacing washing machines, toilets, and pre-1999 water softeners with high-efficiency and low water use substitutes. Programs also include information on optimizing sprinkler systems, home water checkups, and free conservation devices.[104]

5.3.3 Existing Baseline Emissions

Under existing conditions, greenhouse gas emissions from human activities are produced by the Ridgemark wastewater facilities through electricity use in pumps, generators, and other treatment equipment; and fuel use for maintenance vehicle trips to the wastewater facilities. As discussed in *Section 3.12, Energy*, wastewater treatment consumes electricity during three stages: transport from the customer to the facility, treatment, and, to a lesser extent, disposal.

The existing RM I and RM II facilities use approximately 250,912 kWH of electricity per year which would generate approximately 59.76 metric tons of CO_2e (carbon dioxide equivalents) per year.[105] Methane and nitrous oxide are also produced at the Ridgemark wastewater facilities during wastewater treatment activities, as discussed further below.

5.3.4 Global Climate Change Impacts

Given the global scope of global climate change and the large quantity of greenhouse gas emissions, the challenge under CEQA is for a Lead Agency to present information on the possible impacts of a project on global warming in a way that is meaningful to the decision making process. Under CEQA, there are two essential questions: would a project increase or substantially contribute to an environmental impact, or would the project be subject to impacts from the environment associated with global climate change.

Accordingly, projects can both contribute to global climate change and be exposed to impacts from global climate change, and mitigation measures can be identified to minimize project impacts to and from global climate change.

5.3.4.1 *Thresholds of Significance*

Under State Senate Bill (SB) 97 (August 2007), the State Office of Planning and Research (OPR) is to certify and adopt guidelines for evaluation of the effects of greenhouse gas emissions and mitigation of those effects by January 1, 2010. Neither CEQA nor the CEQA Guidelines currently provide an adopted methodology for analysis of greenhouse gases.[106] The Lead Agency has not adopted its own standards of significance for global climate change impacts. Therefore, in lieu of OPR guidance or locally adopted thresholds, a primarily qualitative approach will be used to evaluate possible impacts for this project.

For the purposes of this EIR, a global climate change impact would be significant if the project would:

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[104] Water Resources Association of San Benito County, http://wrasbc.isoars.com/, accessed December 21, 2008.
[105] Source: PG&E Carbon Footprint Calculator Assumptions website. http://www.pge.com/myhome/environment/calculator/assumptions.shtml
[106] As described under *Regulatory Context for Global Climate Change* above, ongoing workshops are planned in early 2009 to discuss further development of concepts introduced in the ARB's *Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (CEQA).*

- result in substantial new greenhouse gas emissions; or
- be adversely impacted by sea level rise of two to three feet; or
- be adversely impacted by increased electricity demand, particularly in the hot summer months.

At this time, for a project to be a substantial source of new greenhouse gas emissions it would have to meet the following criteria:

- result in a net increase in greenhouse gas emissions, in terms of carbon dioxide equivalents, that could substantially impede local, regional or statewide efforts to reduce overall greenhouse gas emissions to 1990 baseline levels.

5.3.4.2 *Impacts from the Project (Changes in Emissions of Greenhouse Gases)*

The proposed project would be implemented in two phases. Phase 1 of the project includes improvements to the existing wastewater treatment facility at Ridgemark I, installation of recycled water lines of the Ridgemark Golf and Country Club, and use of blended recycled water for irrigation of the existing Ridgemark Golf Course. Phase 2 includes a salinity management/potable water project to be implemented at a later date. The focus on greenhouse gas emissions analyzed in this section is on Phase 1 improvements, as specific components or locations Phase 2 of the project have not yet been identified.

Currently, there is not one model capable of estimating all of a project's direct and indirect greenhouse gas emissions. One model, the URBEMIS 2007 model (Version 9.2.4) can estimate vehicle miles traveled for a particular project and the carbon dioxide emissions from transportation and other land use factors (e.g.., combustion products for on-site heating); however, it does not estimate other energy use or greenhouse emissions from the generation of electricity for lighting, cooling, pumping water, or other uses. Electricity use is calculated separately.

Wastewater treatment processes can create a unique set of processes and fugitive emissions. These emissions can include methane from aerobic or anaerobic digestion during biodegradation of waste products, and nitrous oxide from nitrification or denitrification of the nitrogen present in wastewater in the form of urea, ammonia, and proteins. (Nitrous oxide can be an intermediate produce of both processes, but is more often associated with denitrification.) Emissions of these gasses at wastewater treatment plants may be estimated by using the *Local Government Operations Protocol* (Version 1.0) adopted in September 2008 by the California Air Resources Board.[107]

For the purpose of this EIR, the significance of emissions of greenhouse gases will be evaluated based on a qualitative discussion of estimated net new greenhouse gas emissions, and measures included in the project to reduce greenhouse gas emissions. For construction and operational emissions, an estimate of net emissions under the proposed project was made using the URBEMIS 2007 model. An estimate of possible greenhouse gas emissions from electricity use was also made based upon the California Public Utilities Commission (CPUC) approved *ClimateSmart* electric emissions rate of 0.524 pounds CO_2 per kilowatt-hour (kWH).[108] The following discussion is a good

[107] *Local Government Operations Protocol*, Version 1.0, adopted September 28, 2008 by the California Air Resources Board. Developed for the quantification and reporting of greenhouse gas emissions inventories by the California Air Resources Board, California Climate Action Registry, ICLEI - Local Governments for Sustainability, and The Climate Registry. http://www.arb.ca.gov/cc/protocols/localgov/pubs/final_lgo_protocol_2008-09-25.pdf.
[108] Source: PG&E Carbon Footprint Calculator Assumptions website.

faith effort at estimating possible greenhouse gas emissions from transportation, construction, operations, and wastewater treatment processes.

Construction Emissions

The construction Phase 1 of the project improvements would include site preparation, excavation, and transport of earth materials on- and off-site, removal and delivery of equipment, and construction of an operations building, all of which may result in greenhouse gas emissions. Construction emissions for Phase 1 of the project were calculated using the URBEMIS model, employing estimates of the duration of construction activities and the number and size of the construction vehicles. Based on these factors, emissions of carbon dioxide from Phase 1 construction were estimated at 535.6 metric tons per year (600 tons per year) (Appendix E).

Phase 1 Project Operational Emissions

Emissions of air pollutants associated with project operations were predicted using the URBEMIS2007 model (Version 9.2.4), distributed by the California Air Resources Board. This model predicts daily operational emissions associated with various land use developments. Net area source emissions for the Phase 1 of the project, which result primarily from operation of the diesel-powered emergency generators, would be 70.7 metric tons per year of greenhouse gas emissions (carbon dioxide) (Appendix E).

The estimated peak power demand of the RM I facility following Phase 1 implementation is estimated to be 231 kW with an estimated annual energy requirement of 1,013,000 kWH/year for the processing of 128 MG per year of wastewater. Of this total, the Main Lift Station and Ridgemark II transfer pumps to transport wastewater to the facility are estimated to use approximately 261,300 kWH/year. Transport of recycled water to the Ridgemark golf club irrigation mixing pond would represent 43,000 kWH/year of the total annual energy use.

The generation of electricity through the combustion of fossil fuels (such as natural gas) yields carbon dioxide, as well as smaller amounts nitrous oxide and methane. The projected electric use of 1,013,000 kWH/year for Phase 1 improvements would generate approximately 241.28 metric tons of CO_2e (carbon dioxide equivalent) per year.

The existing RM I and RM II facilities use approximately 250,912 kWH of electricity per year which would generate approximately 59.8 metric tons of CO_2e. Implementation of Phase 1 improvements would result in a net increase of 181.52 metric tons of CO_2e (carbon dioxide equivalent) per year from increased use of electricity.

Wastewater Treatment Process Emissions of Methane and Nitrous Oxide

As described above, emissions unique to wastewater treatment facilities can include methane and nitrous oxide from aerobic and anaerobic processes related to biodegradation of waste and denitrification. Methane and nitrous oxide are two gases that have a greater global warming potential than carbon dioxide. For this analysis, emissions were calculated for process methane generated from wastewater treatment lagoons, and process nitrous oxide generated from wastewater treatment facilities without nitrification/denitrification (existing) and with nitrification/denitrification (future). These emissions are calculated as shown in Table 5.3-1, below.

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http://www.pge.com/myhome/environment/calculator/assumptions.shtml.

Table 5.3-1 Estimated Existing and Future Greenhouse Gas Emissions Wastewater Treatment Processes			
	Existing	**Project**	**Net Increase/ (Decrease)**
	Metric Tons Per Year		
Methane (CH_4)	47	0	(47)
Nitrous Oxide (N_2O)	0.01	0.03	0.02
Notes: Methane and nitrous oxide emissions are calculated using equations 10.4, 10.7, and 10.8 from the *Local Government Operations Protocol* (Version 1.0), adopted September 28, 2008 by the California Air Resources Board, calculated using applicable SSCWD factors by *RMC Water and Environment.*			

In CO_2 equivalents, there would be a net decrease of 987 metric tons of CO_2e per year due to the reduction in methane emissions and a net increase of 6.2 metric tons of CO_2e per year due to the increases in nitrous oxide emissions for a net decrease of approximately 980 metric tons of CO_2e per year from methane and nitrous oxide emissions.[109]

Phase 2 Construction and Operational Emissions

Development of a potable water treatment site could require more construction time than Phase 1 improvements, primarily for the installation of pipelines and evaporation ponds. A lime softening facility would take 12 to 18 months to complete, and a demineralization facility would take an additional 12 to 18 months to construct.

On a qualitative basis, greenhouse gas emissions from Phase 2 potable water treatment improvements would be associated with electric energy for pumps and operation of water treatment equipment. In general, demineralization would result in greater greenhouse gas emissions than lime water softening as it is a more energy intensive process. The proposed use of evaporation ponds to concentrate the by-products of potable water treatment (sludge from lime softening processes and/or concentrate from demineralization) would use less energy and have less greenhouse gas emissions than fueled evaporation or deep well injection, two other methods considered by the SSCWD. Emissions for Phase 2 operations will be estimated based on current protocols at the time specific potable water treatment improvements are proposed.

Measures Included in the Proposed Project to Reduce Greenhouse Gas Emissions

Phase 1 of the project includes several features that promote water and energy efficiency during construction and operation. These measures are described below.

The project includes measures to reduce construction emissions including: limiting idling of diesel equipment, properly tuning and maintaining construction equipment for low emissions, and use of existing electrical service by contractors whenever possible to avoid the need for independently powered equipment (e.g. compressors). In addition, reuse of the RM I site for the proposed Phase 1

[109] Source: EPA Greenhouse Gas Equivalencies Calculator. http://www.epa.gov/cleanenergy/energy-resources/calculator.html.

improvements limits the amount of site grading and development required, which would reduce emissions from the operation of construction equipment.

The proposed project would also implement appropriate greenhouse gas (GHG) reduction measures identified in the California Governor's Office of Planning and Research *CEQA and Climate Change Technical Advisory* (Attachment 3, June 19, 2008). This includes:

Energy Conservation Policies and Actions:

- Retrofit municipal water and wastewater systems with energy efficient motors, pumps and other equipment.

Other measures identified as strategies by the California Climate Action Team in 2006 to reduce greenhouse gas emissions and included in the project are:

- Shift water-related energy use to off peak periods of energy demand [Phase 1 conveyance of recycled water to golf course].
- Increase the energy efficiency of all water and wastewater treatment operations [Phase 1 and Phase 2: new pumps, reduced groundwater and CVP water pumping for water supply, and recycled water facility near proposed uses.]
- Increase water storage to increase operational flexibility and reduce peak electric system energy requirements [Phase 1 and Phase 2 storage of recycled water in golf course mixing pond].

The proposed use of recycled water also would indirectly reduce energy use for pumping CVP water to San Benito County.

Assessment of Impacts from the Projects

Given the overwhelming scope of global climate change, it is not anticipated that infrastructure projects of this size would have an individually discernable effect on global climate change (e.g., that any increase in global temperature or rise in sea level could be attributed to the emissions resulting from individual projects). Rather, it is more appropriate to conclude that the greenhouse gas emissions generated by the proposed project would combine with emissions across the state, nation, and globe to cumulatively contribute to global climate change.

Declaring an impact significant or not implies some knowledge of incremental effects at a state level that is several months to a year away, at best. To determine whether the proposed project would have a significant impact on global climate change is speculative, particularly given the fact that there are no existing numerical thresholds to determine an impact. However, in an effort to make a good faith effort at disclosing environmental impacts and to conform with the CEQA Guidelines [§16064(b)], it is the District's position that, based on the nature and size of this project and the measures included in the project to reduce energy use and methane emissions during wastewater treatment, the proposed project would not impede the state's ability to reach the emission reduction limits/standards set forth by the State of California by Executive Order S-3-05 and AB 32. For these reasons, the project would not make a cumulatively considerable contribution to global climate change associated with greenhouse gas emissions and global climate change.

Impact C-GCC-1: The project would result in a net increase in carbon dioxide and nitrous oxide emissions above existing conditions, but wastewater treatment improvements would result in a decrease in methane emissions. In addition, the proposed

facility would be designed to operate more efficiently and reduce energy use per unit of treated wastewater. The project, therefore, would not substantially impede efforts statewide to reduce greenhouse gas emissions. **[Less Than Significant Cumulative Impact]**

5.3.4.3 *Impacts to the Proposed Project from Global Climate Change*

As noted previously, climate change effects expected in California over the next century could include reduced water supply, impacts from sea level rise, an increase in the number of days per year ozone pollution levels are exceeded, and increased electricity demand, particularly in the hot summer months.

Impacts to the project from global climate change could include reduced water availability due to droughts. At this time, based on recent case law, neither the State Department of Water Resources, the San Benito County Water District, or the Sunnyslope County Water District has established the effects of global climate change on water supplies in California or locally. The project includes installation and operation of recycled water facilities which would reduce the demand for groundwater and/or CVP water for irrigation during the dry season. This reduction in water demand of approximately 261 acre feet per year would incrementally reduce the possible effects of reduced water supply during drought periods.

The project site is located substantially inland from Monterey Bay and is not within possible inundation areas from an up to three meter (approximately 10 feet) rise in sea level. The project, therefore, would not be directly impacted by sea level rise.

In the event regional demand for electricity exceeded supply, this could result in temporary interruptions in power supply to the proposed wastewater and potable water facilities. To the extent feasible, the recycled water portion of the project would operate during non-peak hours, which would reduce peak demand. With sufficient backup power generation facilities included in the proposed project, this impact would not be substantial.

Impact C-GCC-2: Impacts to the project from global climate change, including reduced water and energy supplies and sea level rise are not anticipated to adversely effect operation of the proposed wastewater and water treatment facilities. **[Less Than Significant Cumulative Impact]**

SECTION 6.0 ALTERNATIVES TO THE PROPOSED PROJECT

6.1 INTRODUCTION

The *CEQA Guidelines,* Section 15126.6 give extensive direction for identifying and evaluating alternatives to a proposed project in an EIR. The purpose of having alternatives in an EIR is to identify ways to substantially lessen or avoid the significant effects that a proposed project may have on the environment. The range of alternatives selected for analysis is governed by the "rule of reason," which requires the EIR to discuss only those alternatives necessary to permit a reasoned choice. Although the alternatives do not have to meet every goal and objective set for the proposed project, they should "feasibly attain most of the basic objectives of the project."

CEQA does not require that all possible alternatives be evaluated, only that "a range of feasible alternatives" be discussed so as to encourage both meaningful public participation and informed decision making. In selecting alternatives to be evaluated, consideration may be given to their potential for reducing significant unavoidable impacts, reducing significant impacts that are mitigated by the project to less than significant levels, and further reducing less than significant impacts.

The three critical factors to consider in selecting and evaluating alternatives are: (1) the project's objectives, (2) the significant impacts from the proposed project which could be reduced or avoided by an alternative, and (3) the feasibility of the alternatives available.

6.1.1 Objectives of the Project

As stated in *Section 1.4, Project Objectives,* the primary objective of the project is to address updated standards for ammonia, nitrates, total suspended solids (TSS), and biochemical oxygen demand (BOD) in wastewater effluent, and to comply with the Regional Board's waste discharge requirements for the Ridgemark facility by January 2010.

Other objectives include:

- Plan for improvements to the District's potable water facilities that would lower salinity in wastewater effluent to meet updated standards for sodium, chloride, and total dissolved solids (TDS).

- Install infrastructure (including pipelines and treatment at wastewater treatment facilities) to meet California Department of Public Health standards for recycled water production and distribution from the Ridgemark I facility.

- Provide upgraded wastewater facilities with adequate capacity to serve projected and planned growth through 2025.

- Implement wastewater, recycled water, and potable water improvements that are cost effective and affordable to District customers in terms of water and wastewater service costs.

6.1.2 Significant Impacts of the Project

As mentioned above, the *CEQA Guidelines* advise that the alternatives analysis in an EIR should be limited to alternatives that would avoid or substantially lessen any of the significant effects of the project, and would achieve most of the project objectives. As discussed previously in the EIR, the project would result in significant or unavoidable impacts on agricultural resources from Phase 2 improvements, significant cumulative impacts to agricultural resources, and a significant growth-inducing impact.

Alternatives may also be considered if they would further reduce impacts that are already less than significant because of required or proposed mitigation. Impacts that would be significant, but for which the project includes mitigation measures to reduce them to a less than significant level, include:

> Phase 1: Construction impacts (water quality, possible impacts to special status species, air quality, noise, and possible impacts to buried cultural resources) and possible odors from solids drying beds at RM I.
>
> Phase 2: Construction impacts (water quality, possible impacts to special status species, air quality, noise, possible impacts to buried cultural resources), unstable soils and seismic hazards, flooding hazard, impacts to visual resources, and energy.

6.1.3 Feasibility of Alternatives

CEQA, the *CEQA Guidelines*, and case law on the subject have found that feasibility can be based on a wide range of factors and influences. The Guidelines advise that such factors *can* include (but are not necessarily limited to) the suitability of an alternate site, economic viability, availability of infrastructure, consistency with a general plan or with other plans or regulatory limitations, jurisdictional boundaries, and whether the project proponent can "reasonably acquire, control or otherwise have access to the alternative site." [§15126.6(f)(1)]

6.1.4 Selection of Alternatives

In addition to the "No Project Alternative," the CEQA Guidelines advise that the range of alternatives discussed in the EIR should be limited to those that "would avoid or substantially lessen any of the significant impacts of the project, or in the case of the proposed project, would further reduce impacts that are considered less than significant with the incorporation of identified mitigation [§15126.6(f)]. The anticipated impacts of the project during Phase 1 and 2 are listed below in Table 6.1-1. The discussion below addresses several alternatives which could reduce project impacts.

Table 6.1-1 Phase 1 and 2 Significant Impacts	
Phase 1: Project-Level Impacts ***Wastewater Treatment Improvements and Recycled Water Lines and Blending***	**Phase 2: Program-Level Impacts** ***Potable Water Treatment Facilities***
Water Quality (construction)	Agricultural Resources
Impacts to individual special status species (construction)	Geology and Soils
Air Quality (construction)	Hydrology and Water Quality
Odor from Solids Beds	Construction Water Quality
Construction Noise	Biological Resources (construction)
Operational Noise	Air Quality (operational dust and construction)
Growth Inducement	Noise Impacts (operational and construction)
	Cultural Resources (construction)
	Visual Resources
	Energy

CEQA encourages consideration of alternative sites when significant effects of the project might be avoided or substantially lessened. Only locations that would avoid or substantially lessen any of the significant impacts of the project and meet most of the project objectives need be considered for inclusion in the EIR. Implementation of Phase 2 of the project could result in a significant impact on Prime Farmland, therefore project sites that would result in reduced impacts on Prime Farmlands are evaluated.

Phase 2 of the project would also contribute to a significant cumulative impact to agricultural resources, and expansion of the capacity of RM I would result in a significant growth-inducing impact. Both Phases I and II of the project would also include a number of impacts related to construction, and alternatives are examined to determine if they would reduce these impacts.

The components of these alternatives are described below, followed by a discussion of their impacts and how they would differ from those of the proposed project.

6.2 NO PROJECT ALTERNATIVE

The *CEQA Guidelines* stipulate that an EIR specifically include a No Project alternative, which should address both "the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the project is not approved, based on current plans and consistent with available infrastructure and community services."

Under the No Project alternative, the proposed wastewater project improvements (Phase 1) would not be constructed, and the future potable water/salinity management project (Phase 2) would also not be completed. The current Ridgemark I and II facilities would continue to treat wastewater to the existing effluent levels and to the current maximum future capacity. Continuing waste discharge at the existing contaminant levels would result in non-compliance by the District with the Regional Board's order to address updated standards for ammonia, nitrates, total suspended solids, and biochemical oxygen demand. Future Phase 2 potable water/salinity management improvements would not be constructed, so that updated standards for sodium, chloride, and total dissolved solids in wastewater effluent would not be addressed. Projected and planned growth within the District's service area would not be served by expanded facilities. The No Project alternative, therefore, would

not meet any of the project objectives.

The No Project alternative would not result in identified construction impacts under Phase 1 or II of the project, including impacts to water quality, special-status species, air quality, noise, and buried cultural resources, all of which would be less than significant with mitigation under the project proposed. The No Project would avoid significant, unavoidable Phase 2 project and cumulative impacts to Prime Farmland and agricultural resources, and would also avoid a significant growth-inducing impact.

6.2.1 Conclusion

The No Project alternative would not result in significant (but mitigated) construction impacts or significant unavoidable impacts to Prime Farmland and agricultural resources. The No Project alternative, however, may result in water quality impacts through continued discharge of wastewater out of compliance with updated standards. The No Project alternative would not fulfill any of the project's objectives regarding improved water and wastewater quality and capacity.

6.3 PHASE 1 IMPROVEMENTS: NO GROWTH ALTERNATIVE

Like the proposed project, the No Growth alternative would improve wastewater effluent contaminant levels to comply with the Regional Board's Waste Discharge Order. However, with the No Growth alternative, the capacity of the treatment system would not increase over existing levels of wastewater inflow, and would subsequently not be able to accommodate the projected growth within the District's service area south of Airline Highway from 3,000 to 4,929 residents.

The No Growth alternative would have similar environmental impacts to the proposed project, including construction impacts and significant impacts to Prime Farmland and agricultural resources from new potable water treatment facilities under Phase 2. The No Growth alternative would avoid a significant growth-inducing impact by maintaining the current wastewater treatment capacity level. However, since this expansion to serve projected and planned growth is one of the objectives of the project, the No Growth alternative, by definition, would not fulfill one of the basic project goals.

6.3.1 Conclusion

The No Growth alternative would complete improvements to the wastewater treatment system, but would not increase capacity. This alternative would result in the same significant environmental impacts, with the exception of the identified significant growth-inducing impact associated with removal of a barrier to growth. The No Growth alternative would not fulfill the project's objective of providing upgraded wastewater facilities with adequate capacity to serve projected and planned growth through 2025.

6.4 PHASE 2 IMPROVEMENTS: ALTERNATIVE LOCATIONS

CEQA encourages consideration of alternative sites when the significant effects of the project might be avoided or substantially lessened. Only locations that would avoid or substantially lessen any of the significant impacts of the project and meet most of the project objectives need be considered for inclusion in the EIR. Since Phase 2 of the project would result in a significant unavoidable impact to agricultural resources and would contribute to a significant cumulative impact to agricultural resources, project sites that would result in reduced impacts on Prime Farmlands were evaluated.

ALTERNATIVE SITES

FIGURE 20

In order to identify alternative sites for Phase 2 improvements that might reasonably be considered to "feasibly accomplish most of the basic purposes of the project," and would also mitigate some or all of the significant impacts of the project, it was assumed that such a site for the potable water treatment facilities would *ideally* have the following characteristics:

1) Approximately 50 acres in size (to accommodate evaporation ponds); and/or approximately 35 acres in size (to accommodate a water softening facility);

2) Consist of flat or gently sloping terrain;

3) Be located between existing or planned groundwater wells and the edge of the SSCWD potable water delivery system at Ridgemark;

4) Not designated as "Prime Farmland" or "Farmland of Statewide Importance" by the California Department of Conservation, or Grade I soils as defined in the County of San Benito General Plan;

5) Not currently under Williamson Act contract; and

6) Outside of the 100-year floodplain (as designated by FEMA).

A search was completed for sites that fit the above criteria, using the San Benito County geographical information system database, California Department of Conservation maps, applicable topographic maps and aerial photographs, and other available information. Three sites were identified that met some or all of the characteristics listed above. The locations of these three alternative sites are shown on Figure 20, and are described below.

6.4.1 Location Alternative I: Santana Ranch

Santana Ranch is located north of Airline Highway and east of Fairview Road, just east of the city limits of Hollister. Santana Ranch is a four-parcel, 291.8 acre site that is currently designated as "Farmland of Local Importance" by the California Department of Conservation. The site is level to moderately sloping, with a creek drainage crossing the southeast corner of the site (see Figure 20). The site contains several rural residential structures facing Fairview Road, but is primarily grassland/rangeland used for dryland farming. The lands to the west of the Santana Ranch site across Fairview Road are in the City of Hollister and are developed with residential uses. The properties south, north, and east of the site currently contain undeveloped grasslands.

The site is currently proposed for residential development, and a Notice of Preparation of an EIR (NOP) on the project was circulated by the County of San Benito as the Lead Agency in March 2008 (SCH #2008031019). The NOP describes the project as follows:

> "The Northeast Fairview Specific Plan of Santana Ranch is a Specific Plan proposing development of up to 1,092 dwelling units, neighborhood commercial uses, parks, and an elementary school. The 291.8 acre plan area is situated in unincorporated San Benito County adjacent to the City of Hollister. The project site is located along Fairview Road across from existing neighborhoods between Hillcrest and Sunnyslope Roads. Wastewater treatment for the proposed Specific Plan may be provided by a new treatment facility to be constructed on an adjacent site to the east that would comprise approximately 26 acres. Other potential wastewater treatment options include connection to the City of Hollister sewer system or connection to the Sunnyslope County Water District system. The applicant is exploring all

options at this time."[110]

The portions of the four parcels closest to Fairview Road are the most suitable for evaporation ponds and a combination of the four parcels would be required to meet size requirements for buildout of a potable water treatment facility that includes demineralization.

6.4.1.1 *Analysis – Location Alternative I*

The Santana Ranch site is located across Fairview Road from the City of Hollister and is currently proposed for residential development. Substantial grading of the western portion of the parcels could be required to construct evaporation ponds since the project site is not entirely level.

A potable water facility (including evaporation ponds) at this location would need to be set back an appropriate distance from residential uses west of Fairview Road and the existing drainage and riparian vegetation that crosses the southeast corner of the site. A biological resources report was not prepared for this alternatives analysis, although it is possible that special-status species that are found in the vicinity, such as San Joaquin kit fox and California tiger salamander, could be present on the site. However, since the site is lacking in ponds and other open water, other special-status species such as western pond turtle are unlikely to be found on this site.

Due to the proximity of the existing City of Hollister residential uses, construction impacts to sensitive uses compared to other likely sites for Phase 2 of the proposed project would be similar or greater.

This alternative location is located far away from existing and planned groundwater wells and would require infrastructure (including pipelines and pumps) for raw water conveyance to the treatment plant. Substantial energy power consumption would be required to convey the raw water to the treatment facility.

The Santana Ranch site could be adequate for potable water facilities envisioned under Phase 2 of the proposed project. The entire site (four parcels) would be larger than required for a treatment facility with evaporation ponds, however, all four parcels could be required to configure an appropriate site due to slope. In addition, the site is being considered for residential development in the near future and may not be available for purchase by the District. For these reasons, this alternative may not be feasible.

6.4.1.2 *Conclusion*

This alternative would be slightly superior to the project in terms of impacts to agricultural resources but may not completely avoid significant impacts to agricultural resources (Farmland of Local Importance) in the area. It would require development on a slightly sloping site and significant energy power consumption would be required to convey raw water from SSCWD wells to the treatment facility. The site is being considered for residential development and may not be available for purchase. For these reasons, it may not wholly meet District objectives.

[110] State Clearinghouse, California Office of Planning and Research, http://www.ceqanet.ca.gov/ProjectList.asp.

6.4.2 Location Alternative II: Lima Property

A second alternative location, the Lima property, is situated south and east of the Ridgemark area and southwest of Airline Highway (Figure 20). The entire parcel is over 386 acres, and contains areas that are relatively hilly (particularly towards Airline Highway), and those that are relatively level or moderately sloping. As shown on Figure 20, the two areas of the parcel that would be considered as prospective alternative sites for the potable water project would be just south of the Ridgemark area, and on the southern portion of the parcel. There is a drainage channel crossing the site from east to west and a depressed area, and the two proposed alternative project locations would avoid this area. Substantial grading could be required to construct evaporation ponds and other facilities since the project site is not entirely level.

The site is bordered on the southwest by rural residential uses, on the south by a sand and gravel quarry (see *Section 6.4.3*), on the east by Airline Highway, and on the north by the Ridgemark development. At its closest point, the Ridgemark II wastewater treatment facility is approximately 140 feet west of the northern portion of the parcel.

The parcel is designated as *Agricultural Productive* on the San Benito County General Plan land use map, as are the areas to the south, west, and east. The site is not under Williamson Act contract, but does contain a strip of Prime Farmland along the northwest border which is adjacent to an existing orchard on a separate parcel. The remainder of the site is designated as "Grazing Land" by the California Department of Conservation (as is the bulk of San Benito County). Much of the site west of the hilly areas near Airline Highway is designated as Grade I soils by the County of San Benito. The site is crossed by power lines, and is generally composed of open grasslands. One residential development area is located on the parcel near Airline Highway (Portogese Way).

6.4.2.1 *Analysis – Location Alternative II*

No current proposals for development of the Lima property have been identified. The site is not under Williamson Act contract and could be used for other purposes than ranching, although the presence of Class I soils could limit extensive development on the site under County of San Benito General Plan policies. Portions of the site are adjacent to the Ridgemark residential development to the north.

A biological resources report was not prepared for this analysis, but San Benito County information indicates that special-status species, particularly San Joaquin kit fox, could have the potential to be present on the site. The site lacks ponds and other open water, although California tiger salamanders could use the site.

Due to the proximity of the existing Ridgemark residential uses, construction impacts to sensitive uses would be similar to other likely sites for Phase 2 improvements. Both construction and operational activities of Phase 2 of the project could result in noise and air quality impacts, and therefore buffers may be recommended between any potable water facilities and residential areas. Substantial grading could also be required to construct evaporation ponds and other facilities since the project site is not entirely level.

The Lima site could be adequate to meet the District's basic objectives to provide upgraded potable water facilities that would supply the projected demand through 2025, and would not cause impacts to Prime Farmland. However, development could result in impacts to County defined soil resources due to the presence of Grade I soils on the site. The hilly areas of the parcel would not be useable for potable water treatment facilities and the site is larger than required. The property may not be

available for purchase by the District.

6.4.2.2 *Conclusion*

This alternative would be slightly superior to the project in terms of impacts to agricultural resources, but may not completely avoid significant impacts to Grade I soil resources in the area. It would require development on a sloping or hilly site and could require purchase of a parcel larger than required than the District, which would significantly increase project costs. For this reason, it may not wholly meet District objectives due to availability or cost.

6.4.3 Location Alternative III: Graniterock Quarry (Southside Sand and Gravel)

The Graniterock Quarry site (Southside Sand and Gravel) is located south of Airline Highway and south of Alternative Location II (Lima property) in unincorporated San Benito County. The site consists of two parcels of 156 and 141 acres, and the area of the quarry that could be used for an alternative site for Phase 2 of the project is approximately 85 acres across the northern, central portion of the two parcels (Figure 20). This area includes the current quarry operations area. The quarry parcels are designated *Agricultural Productive* on the San Benito County General Plan land use map, as are the areas to the south, west, and east. *Agricultural Productive* is a designation generally applied to those lands which are identified as being prime agricultural lands, but also allows mineral extraction uses. The site is not under Williamson Act contract, and is designated as "Other Land" on the California Department of Conservation's *San Benito County Important Farmlands Map.* The site is designated for industrial uses on the County of San Benito Zoning Map.

The alternative site location is located north of Tres Pinos Creek, from which sand and gravel are mined by Graniterock Corporation. The quarry is elevated above the creek, and has an uneven terrain, including quarry pits and ponds. Although the property has been partially developed, much of the alternative site location is designated as Grade I soils by the County of San Benito.

6.4.3.1 *Analysis – Location Alternative III*

This alternative location is currently in use for industrial purposes, which could continue for a number of years (approximately 20 years) until mining activities are complete.[111] The site is east of rural residential uses, although future evaporation ponds would be separated from these areas by a buffer of open grasslands, reducing potential construction and operational impacts. Since the site has been disturbed by mining and development, impacts on special-status species would likely be minimal, although there is a pond on site. The 85-acre portion of the site that could be used for evaporation ponds is outside of the FEMA flood zone of Tres Pinos Creek. Substantial grading could also be required to construct evaporation ponds and other facilities since the existing site contains uneven terrain from mining activities. Like the proposed project, evaporation ponds would need to be lined to prevent concentrate impacting groundwater. Demolition of buildings and other structures may also be necessary.

The quarry site could be adequate to meet the District's basic objectives to provide upgraded potable water facilities that would supply the projected demand through 2025, and would not cause impacts to Prime Farmland. If converted to a water treatment facility, future use of the site to provide mineral resources would be affected. The property may not be available for use by the District or be consistent with the planned end use of the site under a Reclamation Plan for the quarry.

[111] There is currently no identified end date for existing quarry operations. (Jim West, Public Affairs, Graniterock, personal communication, January 23, 2009.)

6.4.3.2 *Conclusion*

This alternative would be superior to the project in terms of impacts to agricultural resources. Although located away from the identified mineral resources along the San Benito River, it also could result in the loss of availability of a local mineral resource recovery site. It would require redevelopment and grading of a parcel currently in use for industrial purposes, and may require purchase of a property larger than required. For these reasons, the site may not wholly meet District objectives.

6.5 PHASE 2 IMPROVEMENTS: DESIGN ALTERNATIVES FOR CONCENTRATE HANDLING

Potable water treatment facilities for water softening and demineralization generate sludge or concentrate slurries as the hardness (primarily calcium and magnesium) and total dissolved solids are removed from treated groundwater. Water for the sludge (from water softening) or concentrate stream (from reverse osmosis demineralization) is generally evaporated further to reduce the weight or number of truck trips required to dispose of the material.

The concentrate generated by a Reverse Osmosis (RO) groundwater treatment process under Phase 2 can be reduced through either advanced concentration, land evaporation using ponds, or other technologies. Disposal alternatives include deep well injection, land filling of solids, or discharge to an ocean outfall. A preferred disposal option would likely be coupled with one or more concentrate reduction alternatives to reduce the volume of concentrate for disposal.

Both advanced concentration of effluent and deep well injection are methods of handling and/or disposal that would avoid the construction of large evaporation ponds on Prime Farmland.[112] These alternatives are described below.

6.5.1 Advanced Concentration and Disposal

As an alternative to evaporation ponds, an RO concentrate thermal or membrane separation process could be used to reduce the volume of waste concentrate for disposal. For the purposes of this analysis, it is assumed that the Vibratory Shear Separation Process (VSEP) is the advanced concentration method used.[113] The estimated energy use for the VSEP process would be 327,000 BTUs per year for 260 million gallons of treated water produced.

Concentrate from the VSEP process could be disposed of to a landfill or by ocean disposal method. If concentrate is disposed of to a landfill, the concentrate would be evaporated further to approach a solid form before being accepted into a landfill. If the material is disposed of by ocean outfall, further evaporation would be completed to minimize truck trips to the coast, but concentrate would remain in a liquid form.

6.5.1.1 *Conclusion*

Advanced concentration of the RO concentrate could be used as an alternate method in the Phase 2 potable water project in lieu of the use of evaporation ponds. This method would substantially reduce impacts to Prime Farmland from construction of evaporation ponds, which require a relatively

[112] Deep well injection processes would also likely require some level of evaporation ponds as a backup process.
[113] The Vibratory Shear Separation Process (VSEP™) is a membrane separation process that utilizes vibration of the membrane stack to minimize scaling of the membranes.

large amount of flat land. This alternative would fulfill most of the project objectives, but would require substantial energy to implement. Even if Phase 2 of the project used advanced concentration instead of evaporation ponds to concentrate effluent, several acres of land would still be required for the other potable water facilities. Since much of the open land near the existing SSCWD facilities is Prime Farmland agricultural resource impacts could still occur, albeit on a smaller scale.

This alternative would increase energy usage and the emission of greenhouse gases associated with advanced concentration. The cost to District customers would be greater, which may not be consistent with the cost effectiveness objective of the project. This alternative would be environmental superior in terms of impacts to agricultural resources, but would result in increased energy usage and air emissions (both criteria pollutants and greenhouse gases), and higher water service costs.

6.5.2 Deep Well Injection

For deep well injection, concentrate from a reverse osmosis process would be injected into an underground saline aquifer. A feasibility study for deep well injection was prepared for the SSCWD in January 2008.[114] Preliminary data indicates that a saline aquifer appropriate to receive concentrate exists at depths of 1,500 to 5,000 feet or more below ground surface. Suitable sands of the Purisima Formation are located west of the Ridgemark development. This would be confirmed with a more detailed evaluation if deep well injection is selected as a disposal option for effluent concentrate. Some evaporation ponds would be required as backup of the injection system (i.e., for evaporation or storage in the event the injection well needed to be serviced over an extended period).

Deep well injection is not a commonly used disposal method for concentrate, and could incur substantial costs for technical studies, drilling, and well development. Deep well injection would also require approval by the U.S. Environmental Protection Agency and other agencies. Costs could range from three to five million dollars for well development (two wells). If a suitable aquifer is not found during exploratory studies, an alternative disposal method would be required.

6.5.2.1 *Conclusion*

Deep well injection could be used as an alternate process for concentrating effluent to avoid construction of evaporation ponds. However, it is likely that some evaporation ponds would still be required for backup of the injection system. Deep well injection would therefore avoid some of the impacts to Prime Farmland, but would not necessarily avoid these impacts entirely. There is no assurance that a suitable saline aquifer will be found near the District. Given the high cost of well development for deep well injection systems and the size of the District (less than 5,000 residents south of Airline Highway), this alternative would not meet the District's objectives regarding costs to ratepayers.

[114] "Deep Injection Well Feasibility Study, Hollister, California, San Benito County," prepared for the Sunnyslope County Water District by All Consulting, January 2008.

Table 6.6-1 Alternative Sites Considered But Rejected					
Site #	**Area/Location**	**Owner/Site/ Project Name**	**APNs**	**Acres**	**Other Constraints/ Reason Rejected**
1	South of Airline Highway, North of Union Road	Vicinity of Riverside Road, north of Nash Road	210600290 210600260 210600270 210500070 210600280	21.0	Not entirely flat. The site is too small, even if parcels are combined.
2	South of Airline Highway, North of Union Road	Vicinity of Riverside Road, north of Nash Road	210800470 210800320 210800330	9.5	Partially Prime Farmland, far west from Ridgemark facilities, partially residential. Total site too small, even if parcels are combined.
3	North of Airline Highway, West of Fairview Road	Award Homes	577100020 577100050 577100060 577100070 251900420 253200150 253200130	Approx. 295	Approved for residential development.
4	South of Airline Highway, South of Union Road	County Quarry	203200310	32.6	Part of larger parcel--less than 10 acres are quarry uses. Possibly large enough to accommodate some, but not all lime treatment or evaporation ponds.
5	South of Airline Highway, South of Union Road	North of Pond 6	211400410 211400280 202800410 202800130 202900280	73.01	Site parcels are designated Farmland of Local Importance and are in the middle of sites designated Prime Farmland and Residential. Only small area out of flood zone (10-15%).
6	South of Airline Highway, South of Union Road, North of Ridgemark.	Lico	202900290	52.7	Partially Farmland of Local Importance. Not entirely flat, bordered by residential development.
7	East of Fairview Road and North of Airline Highway	Gavilan Site	251900490	37.3	Not large enough; sloping, approved for community college uses.
8	South of Airline Highway, South of Union Road	West of San Benito River, west of Cienega Road	211100430 211100440 211100500 211100370 211100530 211100550 211100560 211100570 211100540 211700090 211700110 211700120	68.8	Multiple rural residential five-acre lots, difficult to assemble 10-12 lots with existing rural residential uses, (beyond SSCWD facilities).
9	South of Airline Highway.	Ridgemark II Facility	206500180	7.74	Too small, unless used for lime treatment only.
10	North of Airline Highway, East of Ridgemark	Nino	25200001	106.8	35-40% Farmland of Statewide Importance, sloping.

6.6 ALTERNATIVES CONSIDERED BUT REJECTED

6.6.1 Other Location Alternatives Considered

A search was completed for location alternative sites that fit the criteria described in *Section 6.4*, above, using the San Benito County geographical information system database, California Department of Conservation maps, applicable topographic maps and aerial photographs, and other available information. The primary purpose of a location alternative search was to identify sites where the proposed potable water project could be built that would avoid significant unavoidable impacts to Prime Farmland.

A number of locations in the project area were considered but rejected as alternative sites for the potable water project. In most cases, these sites were generally too small (less than 50 acres), had uneven surfaces (hilly or with drainages), were partially developed with rural residential uses, or had portions of the sites designated as Prime Farmland or under Williamson Act contract. In some cases, a number of contiguous parcels were considered, but rejected due to the logistical difficulty of combining the parcels. Several sites were sufficiently large to be used for a portion of the potable water project (lime softening), but not large enough for evaporation ponds. These sites are described in Table 6.6-1, and indicated on Figure 20 by the site number.

6.6.2 Design Alternatives for Phase 1 Improvements

The existing RM I facility is located near residences and wastewater treatment activities potentially could produce odors if aeration of biosolids is not maintained. There are a range of treatment methods (including a belt press or screw press for dewatering biosolids) and operation methods (aeration technology and frequency) that could be used at the RM I facility.[115] In general, treatment activities within structures would have a reduced potential for creating odors; however, the possibility of odor generation in proximity to the existing residential area would generally be similar to that of the proposed project and other processes would not reduce the potential for odors without specific control measures. Like the proposed project, odor minimization and control measures would be required to be developed as a part of operation and maintenance procedures for any new equipment and processes. For these reasons, design alternatives to reduce the potential for odors from new or modified treatment operations are not addressed further.

6.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The *CEQA Guidelines* state than an EIR shall identify an environmentally superior alternative, however, Section 15126.6(e)(2), states that "if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." A summary of project impacts under the various alternatives is provided below in Tables 6.7-1 and 6.7-2.

6.7.1 Environmentally Superior Alternative – Phase 1 Improvements

The No Growth alternative would result in direct impacts similar to the proposed project and would avoid the significant growth-inducing impacts of the projects. It would not, however, meet the basic objective of the project to provide adequate wastewater treatment for planned growth.

[115] Source: "Ridgemark Area Wastewater Treatment Improvements Final Basis of Design Report," prepared for the Sunnyslope County Water District by RMC, August 2008.

6.7.2 Environmentally Superior Alternative – Phase 2 Improvements

Based upon the previous discussion, the environmentally superior alternative is the Location II alternative, which would avoid significant project and cumulative impacts to Prime Farmland. The Location II alternative, however, could result in impacts to agricultural resources in the County of San Benito because Grade I soils are mapped on areas of the site suitable for the potable water treatment facility.

The design alternatives considered could reduce impacts to Prime Farmland, but like the Location Alternative II, would not reduce the significant growth-inducing impact. These alternatives may have other impacts, such as increased energy usage and air emissions. These alternatives may not fulfill the District's project objectives regarding costs to ratepayers.

Since the design alternatives may still require some amount of land designated as Prime Farmland for evaporation ponds, and Location Alternative I is proposed for development for residential uses, Location Alternative II would be the environmentally superior alternative.

Table 6.7-1
Comparison of Project Alternatives
Phase 1 Improvements

Impact	Proposed Project	No Project Alternative	No Growth Alternative
HYDRO-2: Construction Runoff	SM	**NI**	SM
BIO-3: CTS, CRLF, Spadefoot	SM	**NI**	SM
BIO-4: Western Pond Turtle	SM	**NI**	SM
BIO-5: Burrowing Owl	SM	**NI**	SM
BIO-6: SJ Kit Foxes	SM	**NI**	SM
BIO-7: American Badger	SM	**NI**	SM
BIO-8: Nesting Raptors	SM	**NI**	SM
BIO-9: Nesting Waterfowl	SM	**NI**	SM
AQ-2: Objectionable Odors	SM	**NI**	SM
AQ-4: Construction Air Quality	SM	**NI**	SM
NOISE-2: Construction Noise	SM	**NI**	SM
CR-1: Archaeological Resources	SM	**NI**	SM
Growth-inducing Impact	SU	**NI**	**LTS**
Overall Environmentally Superior Alternative	--	**--**	**X**
Meets Phase 1 project objective to:			
1) Comply with wastewater discharge order?	YES	NO	YES
3) Install infrastructure for recycled water production and distribution?	YES	NO	YES
4) Provide wastewater facilities with capacity for growth through 2025?	YES	NO	NO
5) Implement improvements that are cost effective and affordable?	YES	NO	YES

SM: Significant, but can be mitigated to a Less Than Significant Level
SU: Significant, Unavoidable Impact **NI:** No Impact **LTS**: Less Than Significant Impact
Bold text indicates "environmentally superior to the proposed project."

Table 6.7-2
Comparison of Project Alternatives
Phase 2 Improvements

Phase 2 Impacts	Proposed Project	No Project	No Growth	Alternative Locations			Design Alternative: Concentrate Handling	
				I. Santana Ranch	II. Lima Property	III. Quarry	Advanced Concentration	Deep Well Injection
LU-5: Agricultural Resources	SU	**NI**	SU	**LTS**[1]	**LTS**[2]	**LTS**	**SU**[3]	**SU**[3]
GEO-4: Geology and Soils	SM	**NI**	SM	SM	SM	SM	SM	SM
HYDRO-6: Flooding	SM	**NI**	SM	SM	SM	SM	SM	SM
HYDRO-7: Construction Runoff	SM	**NI**	SM	SM	SM	SM	SM	SM
BIO-15: Special-status Species	SM	**NI**	SM	SM	SM	SM	SM	SM
AQ-5: Construction Air Quality	SM	**NI**	SM	SM	SM	SM	SM	SM
NOISE-3: Construction Noise	SM	**NI**	SM	SM	SM	SM	SM	SM
CR-4: Archaeological Resources	SM	**NI**	SM	SM	SM	SM	SM	SM
VIS-2: Visual Resources	SM	**NI**	SM	SM	SM	SM	SM	SM
EN-2: Energy Impacts	SM	**NI**	SM	SM	SM	SM	SM	SM
C-LU-2: Cumulative Agricultural	SU	**NI**	SU	**LTS**[1]	**LTS**[2]	**LTS**	**SU**[3]	**SU**[3]
Other Impacts: Air/GHG Emissions				**Increased pumping**			SM or SU	**Increased pumping**
Other Impacts: Mineral Resources						SU		
Overall Environmentally Superior Alternative	--	--	--	--	**X**	--	--	--
Meets Phase 2 project objective to:								
2) Lower salinity in wastewater effluent and meet updated standards?	YES	NO	YES	YES	YES	YES	YES	YES
5) Implement improvements that are cost effective and affordable?	YES	NO	YES	TBD	TBD	TBD	TBD	TBD

SM: Significant, but can be mitigated to a Less Than Significant Level **SU:** Significant, Unavoidable Impact **TBD**: To Be Determined
NI: No Impact **LTS:** Less Than Significant Impact

Bold text indicates "environmentally superior to the proposed project."

1. Although this alternative would avoid Prime Farmland, project implementation at the Santana Ranch site would impact "Farmlands of Local Importance."
2. To be considered a less than significant impact on agricultural resources, Phase 2 improvements at the Lima property site would need to avoid a small area of Prime Farmland on the property. Development of Phase 2 improvements at this site may impact Grade I soils.
3. These alternatives may still require some installation of evaporation ponds, although smaller than the proposed project.

SECTION 7.0 SIGNIFICANT UNAVOIDABLE IMPACTS

The project would result in the significant unavoidable impacts discussed below. All other impacts of the proposed project would be mitigated to a less than significant level with incorporation of applicable project- and program-level mitigation measures identified in this EIR.

7.1 PHASE 1 IMPROVEMENTS

- **Growth-inducing Impacts:** The County of San Benito General Plan and zoning regulations require project-specific environmental review and measures to avoid or reduce significant impacts to the environment. The conformance of future development projects to County General Plan policies could avoid or reduce significant environmental impacts associated with new growth; however, some impacts may not be reduced to a less than significant level. The severity of these impacts will depend on the size and location of the induced growth. Since the project will remove an existing impediment to growth and because of the amount of induced growth that could occur, the project would result in a significant growth-inducing impact.

7.2 PHASE 2 IMPROVEMENTS

- **Land Use: Agricultural Resources:** Implementation of the Phase 2 potable water project could result in significant agricultural resources impacts to Prime Farmland. Although program-level mitigation measures are included in the project for other significant impacts, implementation of Phase 2 improvements would likely result in a significant and avoidable impact to Prime Farmland.

- **Cumulative Impacts to Agricultural Resources:** The cumulative projects, including Phase 2 of the proposed project, would result in cumulatively significant impacts to agricultural resources.

SECTION 8.0 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

This section was prepared pursuant to CEQA Guidelines Section 15126.2(c), which requires a discussion of the significant irreversible changes that would result from the implementation of a proposed project. Significant irreversible changes include the use of nonrenewable resources, the commitment of future generations to similar use, irreversible damage resulting from environmental accidents associated with the project, and irretrievable commitments of resources.

8.1 USE OF NONRENEWABLE RESOURCES

The construction of the proposed wastewater treatment and potable water/salinity management project would require the use and consumption of nonrenewable resources. Nonrenewable resources include fossil fuels and metals, and cannot be regenerated over time.

As discussed in *Section 3.12, Energy*, energy will be consumed during both the construction and operational phases of Phase 1 and 2 of the project. The construction phase will require energy for the manufacture and transport of construction materials, preparation of the site (e.g., demolition of the existing equipment and excavation and grading), and the construction of the new facilities, pipelines, and the operations building.

The operation of the proposed water and wastewater facilities would consume energy (in the form of electricity and natural gas) for the operation of equipment and machinery including pumps, generators, and filters; as well as heating, cooling, and lighting of the operations building. Operational energy will also be consumed during each vehicle trip associated with the expanded facilities.

SECTION 9.0 REFERENCES

All Consulting, *Deep Injection Well Feasibility Study, Hollister, California, San Benito County*, prepared for the Sunnyslope County Water District, January 2008.

Association of Monterey Bay Area Governments, *Monterey Bay Area 2008 Regional Forecast Population, Housing Unit and Employment Projections for Monterey, San Benito and Santa Cruz Counties to the Year 2035*, http://www.ambag.org/publications/reports/Transportation/2008Forecast.pdf, accessed November 19, 2008.

Association of Monterey Bay Area Governments, letter from David Roemer to DJP&A, "Consistency Determination, Ridgemark Wastewater Treatment and Recycled Water Improvements Project," February 13, 2009.

Ballanti, Don, Certified Consulting Meteorologist, *Air Quality Impact Evaluation for the Ridgemark Wastewater Treatment and Recycled Water Improvements Project, San Benito County*, September 2008.

Basin Research Associates, *Historic Properties Survey Report/Finding of No Effect, Ridgemark Wastewater Treatment and Recycled Water Improvements Project*, July 2008.

California Air Resources Board, *Local Government Operations Protocol*, Version 1.0, adopted September 28, 2008. Developed by the California Air Resources Board, California Climate Action Registry, ICLEI - Local Governments for Sustainability, and The Climate Registry. http://www.arb.ca.gov/cc/protocols/localgov/pubs/final_lgo_protocol_2008-09-25.pdf/

California Air Resources Board, *Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (CEQA).*

California Air Resources Board, SB 375 Regional Targets Advisory Committee, http://www.arb.ca.gov/cc/sb375/rtac/rtac.htm, accessed February 18, 2009.

California Air Resources Board, http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm, accessed December 15, 2008.

California Department of Forestry and Fire Protection (CalFire), http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_sanbenito.php, accessed November 10, 2008.

California Department of Conservation, *San Benito County Important Farmlands Map 2006*, 2007.

California Department of Fish and Game, Habitat Conservation Planning Branch, http://www.dfg.ca.gov/nccp/status, accessed January 12, 2007.

California Department of Forestry and Fire Protection (CalFire), *San Benito County Natural Hazard Disclosure (Fire) Map*, 2000, [http://www.fire.ca.gov/fire_prevention/fhsz_maps_sanbenito.php],

accessed November 10, 2008.

California Energy Commission, *2005 Integrated Energy Policy Report*, November 2005.

California Energy Commission, *2007 Integrated Energy Policy Report*.

California Energy Commission, *California's Water – Energy Relationship Prepared in Support of the 2005 Integrated Energy Policy Report Proceeding (04-IEPR-01E)*, November 2005.

California Environmental Protection Agency, 2006, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT.PDF.

California Environmental Protection Agency, 2006, *Climate Action Team Executive Summary Climate Action Team Report to Governor Schwarzenegger and the California Legislature.*, http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT_EXECSUMMARY.PDF.

California Health Laws Related to Recycled Water ("Purple Book"), Title 22 Code of Regulations, Division 4. Environmental Health, http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Recharge/Purplebookupdate6-01.PDF.

California Independent System Operator, August 11, 2004.

California Independent System Operator, July 26, 2006, http://www.caiso.com/183e/183ebd4414ad0.pdf

California Legislative Analyst's Office, 2006, *Analysis of the 2006-07 Budget Bill (Governor's Climate Change Initiative)*. http://www.lao.ca.gov/analysis_2006/resources/res_04_anl06.html.

California Office of Planning and Research, *CEQA Guidelines and Greenhouse Gases,* http://opr.ca.gov/index.php?a=ceqa/index.html , accessed February 18, 2009.

California Regional Water Quality Control Board Central Coast Region, Waste Discharge Order No. R3-2004-0065, December 3, 2004.

California Scenic Highway Mapping System, California Department of Transportation, http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm.

California State Water Resources Control Board, Geotracker, http://www.geotracker.swrcb.ca.gov/.

Central Coast Regional Water Quality Control Board, *Section 303(d) List of Water Quality Limited Segments Requiring TMDLs*, June 28, 2007, http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r3_06_303d_reqtmdls.pdf.

Central Coast Regional Water Quality Control Board, WDR No. R3-2004-0065 for Sunnyslope County Water District, Ridgemark Estates Subdivision, Wastewater Treatment Plant, San Benito County.

Council of San Benito County Governments, *San Benito County Regional Transportation Plan,* March 2005.

DCM Engineering, *Technical Memorandum, Geotechnical Library Research, Ridgemark Area Wastewater Improvements Project, Sunnyslope County Water District, Hollister, California,* April 24, 2008.

Energy Information Administration, *State Energy Profiles*. [http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=CA#], accessed November 8, 2008.

Exxon Corporation, http://www.exxon.com/USA-English/GFM/Products_Services/Fuels/Diesel_Fuels_FAQ.asp, accessed November 8, 2008.

Federal Emergency Management Agency, *Definitions of FEMA Flood Zone Designations, Moderate to Low Risk Areas*, www.fema.gov, accessed October 11, 2008.

Federal Emergency Management Agency, Flood Insurance Rate Map #06069C0090C, Unincorporated San Benito County, September 27, 1991.

Federal Emergency Management Agency, *Flood Insurance Rate Map No. 06069C0090 C, San Benito County California and Incorporated Areas*, September 27, 1991.

Federal Highway Administration, www.fhwa.dot.gov/ August 14, 2008.

Hollister, City of, *General Plan,* Adopted 2005.

Hollister, City of, *Final Environmental Impact Report, Domestic Wastewater System Improvements*, October 2006, http://www.hollister.ca.gov/site/html/gov/office/fire.asp.

Hollister, City of, *Final Subsequent Environmental Impact Report, Reclaimed Water Irrigation Project*, March 2008.

Hollister, City of, Fire Department, http://www.hollister.ca.gov/site/html/gov/office/fire.asp.

Hollister, City of, *Memorandum of Understanding: Hollister Urban Area Water and Wastewater Master Plan*. July 22, 2004.

Hollister, City of, San Benito County, San Benito County Water District, and Sunnyslope County Water District, *Hollister Urban Area Water and Wastewater Master Plan,* November 2008.

IPCC, 2007, *Summary for Policymakers*. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: http://www.ipcc.ch/.

Live Oak Associates, *Ridgemark Wastewater Treatment and Recycled Water Improvement Project (Sunnyslope County Water District) – Biotic Evaluation in Support of CEQA Plus, Hollister, California*, October 2008.

Monterey Bay Unified Air Pollution Control District and Association of Monterey Bay Area

Governments, *2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region*, Approved March 21, 2007 (MBUAPCD) and May 9, 2007 (AMBAG).

Monterey Bay Unified Air Pollution Control District, *2008 Air Quality Management Plan for the Monterey Bay Region*, August 2008.

Monterey Bay Unified Air Pollution Control District, *CEQA Air Quality Guidelines*, Revised June 2004.

Monterey Bay Unified Air Pollution Control District, http://www.mbuapcd.org/, accessed December 21, 2006.

Monterey County, California Multi-Jurisdictional Hazard Mitigation Plan, http://www.co.monterey.ca.us/oes/PDFs_and_Documents/LHMP/E4_DamFailure.pdf.

Paxton, Mary, City of Hollister, email communication, December 16, 2008.

Pilas-Treadway, Debbie, California Native American Heritage Commission, February 28, 2008.

RMC Water and Environment, *Final Basis of Design Report, Sunnyslope County Water District*, August 25, 2008.

Rose, Mandy, Director, San Benito County Integrated Waste Management, Personal Communication to DJP&A, August 15, 2008.

Rosenberg, L.I., *Liquefaction Susceptibility of the Hollister Area, San Benito County, California, Final Technical Report*, USGS Award No 1434-HQ-97-GR-03125, National Earthquake Hazards Reduction Program, U.S. Geological Survey, Menlo Park, CA, February, 1998.

San Benito County, *General Plan Land Use Element*, Adopted 1992, amended 1998.

San Benito County, *General Plan.*

San Benito County, Public Health Division, http://www.sanbenitoco.org/eh/hazmat.html.

San Benito County Airport Land Use Commission, *Comprehensive Land Use Plan, Hollister Municipal Airport*, adopted November 15, 2001. http://www.sanbenitocog.org/clup/CLUP%20Report-HollisterAirport.pdf.

San Benito County Fire Department, http://www.san-benito.ca.us/departments/calfire/.

San Benito County Sheriff's Department, http://www.sbcsheriff.org/default.htm.

San Benito County Water District and Water Resources Association, *Final Program Environmental Impact Report Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin*, May 2004.

San Benito County Water District, *San Benito County Water District Annual Groundwater Report for Water Year 2007* (December 2007), prepared by Todd Engineers, http://www.sbcwd.com/Annual_GW_report_2007.pdf.

San Benito LAFCO, *Countywide Municipal Services Review*, November 2007.

State of California, Department of Finance, *E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change - January 1, 2007 and 2008.* Sacramento, California, May 2008.

State Water Resources Control Board, Division of Financial Assistance, *Environmental Review Process Guidelines for State Revolving Fund Loan Applicants,* September 2004, http://www.waterboards.ca.gov/funding/docs/srf/appendix_e.pdf, accessed June 9, 2008.

Sunnyslope County Water District, http://www.sscwd.org/conserve.html, accessed December 21, 2008.

Sunnyslope County Water District, *2005 Annual Drinking Water Quality Report*, 2006.

Sunnyslope County Water District, *Final Long-Term Wastewater Management Plan*, January 2006.

Sunnyslope County Water District, *Wastewater Rate and Connection Fee Study*, November 2007.

The White House, *Energy Security for the 21st Century*, February 20, 2008, http://www.whitehouse.gov/infocus/energy

U.S. Energy Information Administration [http://www.eia.doe.gov/basics/conversion_basics.html], accessed November 8, 2008.

U.S. Environmental Protection Agency, *EPA Manual – Guidelines for Water Reuse*, September 1992.

U.S. Fish and Wildlife Service, http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=A006.

United States Department of Agriculture, Soil Conservation Service, *Soil Survey, San Benito County California*, November 1969.

Water Resources Association of San Benito County, http://wrasbc.isoars.com/, accessed December 21, 2008.

Yates, Gus, *Sunnyslope County Water District: Simulation of Impacts of Wastewater Alternatives on Groundwater Flow and Salinity*, July 15, 2008

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SECTION 11.0 ACRONYMS AND ABBREVIATIONS

µg/m^3:.....Micrograms per Cubic Meter
ADWF: .....Average Daily Flow: Dry Weather
AMBAG:.....Association of Monterey Bay Area Governments
AQMP:.....Air Quality Management Plan
AWWF:.....Average Daily Flow: Wet Weather
af/y: .....Acre Feet per Year
APE:.....Area of Potential Effects
APN: .....Assessor's Parcel Number
AST:.....Aboveground Storage Tank
bgs:.....Below Ground Surface
BMP:.....Best Management Practice
BOD:.....Biological Oxygen Demand
Btu:.....British Thermal Unit
CAA:.....Clean Air Act
CAAQS:.....California Ambient Air Quality Standards
CalARP:.....California Accidental Release Program
CAP:.....Clean Air Plan
CARB:.....California Air Resources Board
CAT: .....Climate Action Team
CBC: .....California Building Code
CCAA: .....California Clean Air Act
CCAR:.....California Climate Action Registry
CCR: .....California Code of Regulations
CDFG:.....California Department of Fish and Game
CEQA:.....California Environmental Quality Act
CESA: .....California Endangered Species Act
CFR:.....Code of Federal Regulations
CHRIS/NWIC:.....California Historical Resources Information System/ Northwest Information Center
CIWMB: .....California Integrated Waste Management Board
CNDDB: .....California Natural Diversity Data Base
CNEL:.....Community Noise Equivalent Level
CNPS.....California Native Plant Society
CO:.....Carbon Monoxide
CRHR:.....California Register of Historic Places
CRWQCB: .....California Regional Water Quality Control Board
CTS: .....California Tiger Salamander
CVP:.....Central Valley Project
dB:.....Decibel
dBA:.....A-weighted Decibel
DHS: .....Department of Health Services
DNL: .....Day-Night Level
DO:.....Dissolved Oxygen
DPH: .....Department of Public Health
DPM:.....Diesel Particulate Matter
DTSC: .....Department of Toxic Substances Control
DWR: .....Department of Water Resources

DWTP: .....Domestic Wastewater Treatment Plant (Hollister)
EIR: .....Environmental Impact Report
EPA: .....Environmental Protection Agency
ESA: .....Endangered Species Act
FEMA: .....Federal Emergency Management Agency
GCC: .....Global Climate Change
GHG: .....Greenhouse Gas
GP: .....General Plan
GPD: .....Gallons per Day
GW: .....Gigawatt
GWMP: .....Groundwater Management Plan
HAP: .....Hazardous Air Pollutants
HCP: .....Habitat Conservation Plan
HFC: .....Hydrofluorocarbon
HSP: .....Health and Safety Plan
IPCC: .....Intergovernmental Panel on Climate Change
IWTF: .....Industrial Wastewater Treatment Facility
kWhr: .....Kilo-watt Hour
Ldn: .....Day-Night Level
Leq: .....Noise Equivalent Level
LESA: .....Land Evaluation and Site Assessment (Model)
MBTA: .....Migratory Bird Treaty Act
MBUAPCD: .....Monterey Bay Unified Air Pollution Control District
MCL: .....Maximum Contaminant Levels
Mg/kg: .....Milligrams per Kilogram
MGD: .....Million Gallons per Day
M&I: .....Municipal and Industrial
MOU: .....Memorandum of Understanding
MPO: .....Metropolitan Planning Organization
MSL: .....Mean Sea Level
MTBE: .....Methyl Tert-Butyl Ether
NAAQS: .....National Ambient Air Quality Standards
NAHC: .....California Native American Heritage Commission
NCCAB: .....North Central Coast Air Basin
NCCP: .....Natural Community Conservation Plan
NEPA: .....National Environmental Policy Act
NESHAP: .....National Emissions Standards for Hazardous Air Pollutants
NHPA: .....National Historic Preservation Act
NMFS: .....National Marine Fisheries Service
NO_2: .....Nitrogen Dioxide
NOP: .....Notice of Preparation
NOT: .....Notice of Termination
NO_X: .....Nitrogen Oxides
NPDES: .....National Pollutant Discharge Elimination System
NRHP: .....National Register of Historic Places
OPR: .....Office of Planning and Research
OSHA: .....Occupational Safety and Health Administration
PG&E: .....Pacific Gas and Electric Company
PM: .....Particulate Matter
PPB: .....Parts per Billion
PPM: .....Parts per Million

PWWF: .....Peak Wet Weather Flow
RM: .....Ridgemark
RO:.....Reverse Osmosis
ROG:.....Reactive Organic Gases
RTAC:.....Regional Targets Advisory Committee
RWQCB:.....Regional Water Quality Control Board
SAR:.....Sodium Absorption Ratio
SBCC: .....San Benito County Code
SBCWD: .....San Benito County Water District
SBR:.....Sequencing Batch Reactor
SHPO: .....State Historic Preservation Officer
SIP:.....State Implementation Plan
SMARA: .....Surface Mining and Reclamation Act
SOI:.....Sphere of Influence
SO_X.....Sulfur Oxides
SRF: .....State Revolving Fund
SSCWD:.....Sunnyslope County Water District
SWPPP:.....Stormwater Pollution Prevention Plan
SWRCB: .....State Water Resources Control Board
TAC: .....Toxic Air Contaminants
TDS:.....Total Dissolved Solids
TMDL: .....Total Maximum Daily Load
TSS:.....Total Suspended Solids
URBEMIS:.....Urban Emissions (software)
USACE: .....United States Army Corps of Engineers
USFWS: .....United States Fish and Wildlife Service
UST:.....Underground Storage Tank
UV:.....Ultraviolet
VMT:.....Vehicle Miles Traveled
VOC:.....Volatile Organic Compounds
WDR: .....Waste Discharge Requirements
WRA: .....Water Resources Association (of San Benito County)

Final Environmental Impact Report

Ridgemark Wastewater Treatment and Recycled Water Improvements Project

State Clearinghouse Number 2008071031

Sunnyslope County Water District
July 2009

FINAL ENVIRONMENTAL IMPACT REPORT

Ridgemark Wastewater Treatment and Recycled Water Improvements Project

SCH# 2008071031

Prepared by the

Sunnyslope County Water District
July 2009

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APPENDICES

Appendix D: Biological Report (Revised)

PREFACE

This document, together with the Draft Environmental Impact Report (DEIR), constitutes the Final Environmental Impact Report (FEIR) for the *Ridgemark Wastewater Treatment and Recycled Water Improvements Project* in Hollister, California. The DEIR was circulated to affected public agencies and interested parties for a 45-day review period. This FEIR consists of comments received by the Lead Agency, the Sunnyslope County Water District, on the DEIR, responses to those comments, and revisions to the text of the DEIR.

In conformance with the CEQA Guidelines, the FEIR provides objective information regarding the environmental consequences of the proposed project. The FEIR also examines mitigation measures and alternatives to the project intended to reduce or avoid significant environmental impacts. The FEIR is used by the City and other Responsible Agencies in making decisions regarding the project. The CEQA Guidelines require that, while the information in the FEIR does not control the agency's ultimate discretion on the project, the agency must respond to each significant effect identified in the DEIR by making written findings for each of those effects. According to the State Public Resources Code (§21081), no public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless both of the following occur:

(a) The public agency makes one or more of the following findings with respect to each significant effect:

(1) Changes or alterations have been required in, or incorporated into, the project which will mitigate or avoid the significant effects on the environment.

(2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.

(3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities of highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.

(b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment.

All documents referenced in this EIR are available for public review in the offices of the Sunnyslope County Water District, 3750 Airline Highway, Hollister, California, Monday through Friday from 8:00 a.m. to 5:00 p.m. In accordance with the CEQA Guidelines, the FEIR will be made available to the public a minimum of ten days prior to the EIR certification hearing.

SECTION 1.0 LIST OF AGENCIES, ORGANIZATIONS, AND INDIVIDUALS RECEIVING THE DRAFT EIR OR NOTICE OF AVAILABILITY

Federal Agencies

U.S. Fish and Wildlife Service

State Agencies

California Department of Conservation
California Department of Fish and Game, Region 4
California Department of Food and Agriculture
California Department of Health Services
California Department of Parks and Recreation
California Department of Transportation, District 5
California Department of Water Resources
California Highway Patrol
California Native American Heritage Commission
California Public Utilities Commission
California Resources Agency
Regional Water Quality Control Board, Region 3 California State Water Resources Control Board, Clean Water Program
California State Water Resources Control Board, Division of Water Rights
California State Clearinghouse

Regional and County Agencies

Association of Monterey Bay Area Governments
Monterey Bay Unified Air Quality Management District
Central Coast Regional Water Quality Control Board
County of San Benito, Planning Department
County of San Benito, Administration
County of San Benito, Public Works
San Benito County Water District

Cities and Local Agencies

City of Hollister
San Benito County Free Library
Tres Pinos Water District

Businesses and Organizations

Ridgemark Golf Course and Country Club
Ridgemark Homeowner's Association
San Benito County Farm Bureau
Sierra Club-Loma Prieta Chapter

Additional individuals and groups were notified of the availability of the Draft EIR by email and postal mail, and the Draft EIR has been posted on the Sunnyslope County Water District's website.

SECTION 2.0 LIST OF AGENCIES, ORGANIZATIONS, AND INDIVIDUALS COMMENTING ON THE DRAFT EIR

Presented below is a list of agencies, organizations, and individuals commenting on the Draft EIR. The table below also identifies the date of the letter received, and whether the comment submitted requires substantive responses in the Final EIR. Comments that raise questions regarding the adequacy of the EIR or analyses in the EIR require substantive responses. Comments that contain only opinions regarding the proposed project do not require substantive responses in the FEIR. Complete copies of all the letters are included in *Section 5.0* of this Final EIR.

	Comment Received From	Date of Letter	Response Required	Response Provided
State Agencies				
A.	State Water Resources Control Board	April 8, 2009	Yes	Yes
B.	California State Clearinghouse	April 21, 2009	No	No
Local and Regional Agencies				
C.	California Regional Water Quality Control Board, Central Coast Region	April 17, 2009	Yes	Yes
D.	Monterey Bay Unified Air Pollution Control District	April 20, 2009	Yes	Yes
E.	San Benito County Water District	April 23, 2009	Yes	Yes
F.	City of Hollister	April 24, 2009	Yes	Yes
Organizations				
G.	Ridgemark Homes Association	April 21, 2009	Yes	Yes
Businesses and Individuals				
H.	John S. Gregg	April 20, 2009	Yes	Yes
Verbal Comments				
I.	Sunnyslope County Water District Board Meeting, Public Comments	April 9, 2009	No	Yes
J.	Sunnyslope County Water District Board Meeting, Public Comments	April 23, 2009	No	Yes

SECTION 3.0 RESPONSES TO COMMENTS RECEIVED ON THE DRAFT EIR

The following section includes all of the comments requiring responses contained in letters received during the advertised 45-day review period by the Sunnyslope County Water District regarding the DEIR. The comments are organized under headings containing the source of the letter and its date. The specific comments have been excerpted from the letter and are presented as "Comment" with each response directly following ("Response"). The letters submitted to the Sunnyslope County Water District are contained in their entirety in *Section 5.0* of this document.

A. RESPONSES TO COMMENTS FROM THE STATE WATER RESOURCES CONTROL BOARD, DIVISION OF FINANCIAL ASSSISTANCE, DATED APRIL 8, 2009.

Comment A1: ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE SUNNYSLOPE COUNTY WATER DISTRICT (DISTRICT); RIDGEMARK WASTEWATER TREATMENT AND RECYCLED WATER IMPROVEMENTS PROJECT (PROJECT); CLEAN WATER STATE REVOLVING FUND (CWSRF) NO. C-06-5160-110; STATE CLEARINGHOUSE (SCH NO. 2008071031)

We understand the District is pursuing CWSRF financing for the proposed Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information on the EIR prepared for the Project.

Please provide us with the following documents applicable to the proposed Project: (1) Two copies of the Draft and Final EIR, (2) the resolution certifying the EIR, adopting the Mitigation Monitoring and Reporting Program and making California Environmental Quality Act (CEQA) findings, (3) all comments received during the review period and the District response to those comments, (4) the adopted Mitigation Monitoring and Reporting Program, and (5) the Notice of Determination filed with the Governor's Office of Planning and Research. In addition, we would appreciate notice of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board.

Response A1: The District is applying for CWSRF financing for Phase 1 (wastewater treatment improvements) of the proposed project, and will send the listed documents when completed, as requested.

The District will continue to include the State Water Resources Control Board, Division of Financial Assistance on any notices related to hearings on the project.

Comment A2: The CWSRF Program is partially funded by the U.S. Environmental Protection Agency and requires additional "CEQA-Plus" environmental documentation and review. Three enclosures are included that further explain the environmental review process and some additional federal requirements in the CWSRF program. In addition, an environmental form is included for the District to submit should it pursue State Water Board funding. The State Water Board can consult directly with agencies responsible for implementing federal environmental laws and regulations.

Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF funding commitment for the proposed Project. For further information on the CWSRF program, please contact Ms. Michelle L. Jones at (916) 341-6983.

Response A2: The comment related to the CWSRF program is noted. The Draft EIR and associated technical reports were prepared following the SWRCB CEQA-Plus guidelines.

Comment A3: It is important to note that prior to a CWSRF funding commitment, projects are subject to provisions of the Federal Endangered Species Act and must obtain approval from the U.S, Fish and Wildlife Service (USFWS), and/or National Marine Fisheries Service (NMFS) for any potential effects to special status species. Please be advised that the State Water Board can consult with USFWS, and/or NMFS on behalf of the District regarding all federal special status species the Project has the potential to impact if the Project is to be funded under the CWSRF Program. The District will need to identify whether the Project will involve, any direct effects from construction activities, or indirect effects, such as growth inducement, that may affect federally listed threatened, endangered, or candidate species that are known, or have a potential to occur on-site, in the surrounding areas, or in the service area. Please identify applicable conservation measures to reduce such effects.

Response A3: Please refer to *Section 3.4, Biological Resources* and *Appendix D, Biotic Evaluation* of the Draft EIR. These analyses include a full discussion of the project's possible impacts to special-status animals and mitigation measures to minimize those impacts, where applicable. Mitigation and avoidance measures included in the project phase for which CWSRF financing is being requested (Phase 1 wastewater treatment improvements) are listed on pages 124-128 of the Draft EIR.

The proposed project would serve the Ridgemark area, much of which is currently developed with a golf course, housing, or agricultural uses. As noted on page 201 of the Draft EIR, special-status species (including federally listed species) that could be impacted by future development in the area include California tiger salamander, red-legged frog, and possibly burrowing owl and San Joaquin kit fox. While federally listed species potentially are found in the Ridgemark area, and potential impacts from development on individual sites could occur, it is anticipated that mitigation and avoidance measures for future development served by the proposed infrastructure improvements would be similar to those identified for the proposed project (both Phase 1 and Phase 2).

Comment A4: In addition CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act. The State Water Board has responsibility for ensuring compliance with Section 106 and the State Water Board's Cultural Resources Officer (CRO) consults directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant for projects having potential impact to cultural resources. Please contact the CRO, Ms. Cookie Hirn at (916) 341-5690, to find out more about the requirements, and to initiate the Section 106 process, as applicable, if the District decides to pursue CWSRF financing.

Response A4: These comments on the State Water Board's process are acknowledged. The District prepared a cultural resources review of the Phase 1 project activities following the guidelines of Section 106 of the NHPA. This report has been submitted to the Cultural Resources Officer of the SWRCB.

Comment A5: Other federal requirements pertinent to the Project under the CWSRF program include the following:

A. Compliance with the Migratory Bird Treaty Act: List any birds that are protected under this Act that may be impacted by the Project, and identify conservation measures to minimize such impacts.

Response A5: These comments regarding CWSRF program requirements are acknowledged. Please refer to *Section 3.4, Biological Resources,* and the complete biological evaluation of the project included as *Appendix D* of the Draft EIR (a revised version of this report is attached to this document). These analyses include a full discussion of the project's possible impacts to migratory birds, and mitigation measures to minimize those impacts, where applicable. For Phase 1 of the project, these measures include preconstruction surveys for nesting raptors and nesting waterfowl, and the establishment of buffers if nesting birds are present [see MM BIO-8.1 (Nesting Raptors) and MM BIO-9.1 (Nesting Waterfowl) on page 128 of the Draft EIR].

Comment A6:

B. Protection of Wetlands: Identify whether or not the Project or construction activities will impacts stream, flood control channels, or wetlands.

Response A6: Implementation of Phase 1 (wastewater treatment improvements) would not result in direct impacts to streams or wetlands. Please refer to page 123 in *Section 3.4, Biological Resources* and *Appendix D, Biotic Evaluation* of the Draft EIR for the full discussion of the project's impacts to streams, flood control channels and wetlands. Measures to avoid impacts to the water quality of stormwater runoff are included in *Section 3.3, Hydrology and Water Quality* of the EIR.

Comment A7:

C. Compliance with the Wild and Scenic Rivers Act: Identify whether or not the Project will impact any Wild or Scenic Rivers.

Response A7: The closest designated scenic river is the Big Sur River, over 40 miles from the project area. The proposed project would not impact any wild, scenic, or recreational river areas designated under the federal Wild and Scenic Rivers Act. Please see the text revisions to *Section 3.3, Hydrology and Water Quality* of the Draft EIR, in *Section 4.0,* following this section for a discussion of "Wild and Scenic Rivers."

Comment A8: The following are my specific comments regarding the EIR.

1. On page vi of the Draft EIR, impacts to Prime Farmland, land of Statewide Importance, and land under the Williamson Act Contract are identified. Please indicate these as significant and unavoidable impacts to Agricultural Resources, and add a section to identify mitigation measures to partially compensate for these unavoidable losses. In addition, add these unavoidable impacts to the Statement of Overriding Considerations (SOC).

Response A8: The text on page vi of the Draft EIR has been revised to clarify that Phase 2 activities (potable water improvements) could result in significant unavoidable impacts to Prime Farmland. Please see the text revisions to the Draft EIR, *Summary,* in *Section 4.0,* following this section. Program-level mitigation measures for Phase 2 impacts are identified in the *Summary* and in *Section 3.1, Land Use* of the EIR, including measures that would avoid impacts to land under Williamson Act Contract. Please also see *Section 7.0, Significant Unavoidable Impacts* of the Draft EIR for listing of significant, unavoidable impacts. Phase 1 improvements to wastewater treatment facilities would not impact Prime Farmland.

As noted in this comment, a Statement of Overriding Considerations for impacts to agricultural resources for Phase 2 improvements will be required at the time potable water improvements are approved if measures are not included in the project to reduce impacts to a less than significant level.

Comment A9:

2. Page 60 states "If a project that results in the loss of farmland contributes to the protection of other farmland where that threat or likelihood of conversion to nonagricultural use is imminent, that fact can be taken into account when a Lead Agency adopts a statement of overriding consideration." CEQA Guidelines Article 7, Section 15093 states "CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable environmental risks when determining whether to approve the project." If the specific economic, legal, social, technological, or other benefits of the proposed project outweigh the unavoidable adverse effects, the adverse environmental impacts to land use (i.e., conversion of Prime Farm Land) for Phase 2, the District will need to adequately support its decision to continue with the Project in light of the adverse effect. For more information on the SOC please refer to CEQA Guidelines Article 7, Section 15093 (a), (b), and (c).

Thank you once again for the opportunity to review the District's environmental document. If you have any questions regarding my comments, please feel free to contact me at (916) 341-5686, or by email at jhockenberry@waterboards.ca.gov.

Response A9: This comment is acknowledged. If required, a Statement of Overriding Considerations will be prepared at the time the SSCWD's Board of Directors considers project approval, subsequent to certification of the Final EIR.

B. LETTER FROM THE CALIFORNIA STATE CLEARINGHOUSE, DATED APRIL 21, 2009.

No response to this letter is required. This letter may be reviewed in its entirety in *Section 5.0* of this document.

C. RESPONSES TO COMMENTS FROM THE REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL COAST REGION, DATED APRIL 17, 2009.

Comment C1: RE: DRAFT ENVIRONMENTAL IMPACT REPORT - RIDGEMARK WASTEWATER TREATMENT AND RECYCLED WATER IMPROVEMENTS PROJECT, SAN BENITO COUNTY SCH# 2008071031

We appreciate the opportunity to review and comment on the above-referenced document. We understand that this document investigates an upgrade of the current wastewater treatment system at the Ridgemark Estates development and tertiary treated, reclaimed water uses at the Ridgemark Golf and Country Club. The Central Coast Regional Water Quality Control Board (Water Board) is a responsible agency charged with the protection of the Waters of the State of California in the Central Coast Region. The Water Board is responsible for administering regulations established by the Federal Clean Water Act and the California Water Code (Porter Cologne Water Quality Control Act). The regulations cover discharges to surface water, groundwater, and discharges to land that may affect ground water quality, and may apply to this project.

To facilitate the regulatory review process, we offer the following suggestions for your review.

Water Reclamation

The Water Board highly recommends the use of reclaimed water for irrigation but the act of reclaiming wastewater involves immense responsibilities from the user and distributor in order to protect public health. The California Department of Public Health - Drinking Water Program (DPH: formerly Department of Health Services), the State Water Resources Control Board (SWRCB), and the Water Board have a Memorandum of Agreement whose purpose is to assure the regulation of reclaimed water will be exercised in a coordinated and cohesive manner. Therefore, the project manager must coordinate with the DPH, the SWRCB, and the Water Board concurrently for any project that proposes water reclamation activity.

Response C1: This comment on regulation of recycled water use is acknowledged. The SSCWD will coordinate with the DPH, SWRCB, and the Water Board on recycled water project implementation and permitting, as required.

Comment C2:

Waste Discharge Requirements (WDRs)

Wastewater treatment and disposal systems associated with the proposed project must be consistent with the policies and objectives of the Water Quality Control Plan, Central Coast Region (Basin Plan). The subject draft environmental impact report (DEIR) indicates that the Sunnyslope County Water District will not attain the final effluent limits for salts as stated in the current waste discharge requirements Order No. R3-2004-0065. Water Board staff will continue to hold the Sunnyslope County Water District responsible for attaining these effluent levels and will continue oversight of

surface and groundwater impacts through regulations established in the Federal Clean Water Act and the California Water Code. In addition, the Water Board must approve Waste Discharge Water Reclamation Requirements (WDRs) prior to allowing discharge of wastes. The WDR adoption process normally takes at least six months from receipt of a complete application. The Sunnyslope County Water District must submit a Report of Waste Discharge six months prior to start-up of the new wastewater treatment and reclamation facility.

Response C2: The comment is noted, and the SSCWD will continue to work with the RWQCB to comply with applicable regulations.

Comment C3:

Water Quality

The Water Board agrees with the DEIR that the proposed Phase 1 and 2 project presents a significant impact to water quality (Impact HYDRO-2, -6, -7) yet finds the stated mitigative measures (MM HYDRO 2.1, 6.1, 6.2, 6.3, 7.1, 7.2, 7.3) when implemented will reduce the impacts to less than significant. We do not agree with the conclusions of the "No Project Alternative". The DEIR states that a "No Project Alternative may result in water quality impacts" (emphasis added). Water Board staff contend that a "No Project Alternative" will result in water quality impacts.

Response C3: The conclusion for the No Project Alternative in the text of the EIR has been revised to address the concern raised in this comment. Please see the text revisions to the Draft EIR, *Section 6.2, No Project Alternative*, in *Section 4.0,* following these responses.

Comment C4:

Runoff from Urban Development

Urban runoff is a leading cause of pollution throughout California. Greater impervious surface coverage decreases the land's natural capacity to absorb water and remove pollutants, and increases the amount of runoff from rainfall. In addition, urban development creates new pollutant sources as human population density increases and brings with it proportionately higher levels of vehicle emissions, vehicle maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc., which can be washed through the storm drain system into surface waters. As a result, urban development, as indicated by growth in the Ridgemark Estates development, produces runoff which may be significantly greater in volume, velocity and/or pollutant load than pre-development runoff from the same area. Increased runoff volume and velocity can also significantly impact beneficial uses of aquatic ecosystems due to physical modifications of watercourses, such as bank erosion and widening of channels. In order to protect the quality and hydrologic characteristics of surface waters, development should be designed in a way that mitigates the impact of urban development to achieve the Water Board's desired conditions of healthy watersheds.

Response C4: Future residential development within Ridgemark Estates would be regulated by the County of San Benito, and the SSCWD would not have jurisdiction over this development or its hydrologic characteristics. The SSCWD will comply with applicable stormwater regulations during implementation of wastewater and other improvements under its jurisdiction. To the extent the SSCWD encourages water conservation measures that reduce urban runoff

from landscaped areas, it will coordinate with the County or other agencies during future development at Ridgemark Estates to improve the quality and quantity of urban runoff.

Comment C5:

Desired Conditions of Healthy Watersheds

The Central Coast Water Board implements the California Water Code, Federal Clean Water Act, and Central Coast Water Quality Control Plan to achieve its goal of healthy watersheds. To this end, the Water Board has defined the following desired conditions of healthy watersheds:

- Minimal pollutant loading,
- Rainfall surface runoff at pre-development levels (including peak discharge, time of concentration, runoff volume, and flow frequency),
- Watershed storage of rainfall runoff at pre-development levels (through infiltration, recharge, baseflow, and interflow),
- Watercourse geomorphic regimes within natural ranges (including stream bank stability and sediment supply and transport),
- Optimal riparian and aquatic habitat.

Low Impact Development (LID)

Low Impact Development (LID) is the Water Board's preferred means for mitigating the effects of urban development to achieve healthy watersheds. LID is a land planning and design strategy with the goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design. Hydrologic functions of storage, infiltration and groundwater recharge, as well as the volume and frequency of discharges, are maintained through the use of integrated and distributed micro-scale stormwater retention and detention areas, reduction of impervious surfaces, capture and reuse of runoff, and the lengthening of runoff flow paths and flow time. Other related strategies include the preservation/protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, valuable (mature) trees, flood plains, woodlands, and highly permeable soils. LID is a preferred site scale control measure because it integrates measures that address all of the desired conditions of a healthy watershed. Common LID practices include the following:

- Site design that reduces and disconnects impervious surfaces,
- Native vegetation preservation,
- Bioretention,
- Tree boxes to capture and/or infiltration street runoff,
- Vegetated swales, buffers, and strips,
- Directing roof runoff into planter boxes and other vegetated areas,
- Permeable pavement,
- Soil amendments to increase absorption and infiltration rates.

We recommend that these and other LID practices be implemented as much as possible in order to match pre-development hydrologic conditions and to protect water quality prior to further housing development in the Ridgemark Estates area.

Response C5: The comment is noted. Please see Response C4.

Comment C6:

Army Corps of Engineers and California Department of Fish and Game Regulation

Clean Water Act Section 404 involves protection of waters of the State and is within the jurisdiction of the U.S. Army Corps of Engineers. **The Water Board must certify that any permit issued by the Army Corps of Engineers pursuant to Section 404 of the Clean Water Act complies with state and federal water quality standards.** Section 401 Water Quality Certification is necessary for all Section 404 permits, including reporting and nonreporting nationwide permits. This office will review section 401 applications after the Section 404 permit process has begun. Additionally, any project that involves disturbance of a stream bank or riparian area must also obtain a Streambed Alteration Agreement from California Department of Fish and Game.

Response C6: The comment is noted. As currently proposed, wastewater treatment improvements (Phase 1 of the project) would not impact wetlands or riparian areas. The location of potable water improvements (Phase 2 of the project) is not known at this time. Please refer to *Section 3.3, Hydrology and Water Quality*, *Section 3.4, Biological Resources,* and *Appendix D, Biotic Evaluation* of the Draft EIR for a full discussion of the project's impacts to streams and wetland areas.

Comment C7:

California Wetlands Conservation Policy

Portions of the new wastewater treatment and recycling facility and planned pipeline routes may fall near or on wetlands. According to the California Wetlands Conservation Policy the project must ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetland acreage and values in California. The Water Board prefers to avoid any loss of wetlands. If loss is unavoidable, mitigation plans, MMBIO-15.1 through MMBIO15.26 should be implemented to achieve an adequate replacement ratio.

Response C7: The comment regarding avoidance of impacts to wetlands and implementing mitigation measures as part of Phase 2 improvements is noted.

Comment C8:

Construction Planning

The Sunnyslope County Water District must limit grading and excavation to the dry season. During wet weather, the potential for critical erosion and sedimentation problems increases drastically for construction sites. Wet weather is typically between October 15 and April 15. For this reason**, the Water Board advises that construction activities that involve work on a cleared site be conducted during the dry season. If this is not possible, then erosion and sedimentation best management practices (BMPs) must be in place during the rainy season. During the dry season, BMP materials must be on site and accessible in case of unseasonable precipitation events.** Furthermore, it is advised that the amount of graded and grubbed areas be limited (suggest two acres at a time) during the rainy season. All construction projects disturbing more than one acre

must comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

Response C8: The comment is noted. Text has been added to mitigation measure MM HYDRO-2.1 to address erosion control during the rainy-season months, if construction cannot be limited to the dry season (please see *Section 4.0*, below, for these text revisions.).

Comment C9:

Drainage

Please be aware that the Basin Plan requires a minimum thirty foot filter strip (buffer) between significant land disturbance and the highest anticipated water line in water courses whenever possible (Section V.G.4). Buildings and construction activities should be located outside of the thirty-foot filter strip.

Response C9: The comment is noted. No buildings or construction activities are planned within 30 feet of natural water courses under Phase 1. A program-level mitigation measure for Phase 2 improvements has been added to the text of the EIR to address providing for a 30-foot filter strip between buildings and land disturbance and water courses, as called for in the Basin Plan. Please see the text revisions to the Draft EIR, *Section 3.3, Hydrology and Water Quality*, in *Section 4.0* following these responses.

Comment C10:

Storm Water and Nonpoint Source Pollution

To avoid costly redesigns in the project, we encourage the project proponents to include requirements for BMPs that will be incorporated during construction phases (Construction BMPs), and also within the project design (Post-construction BMPs). Construction phase BMPs are temporary measures to control sediment, erosion, and runoff from construction sites. Postconstruction BMPs are incorporated into project design as permanent pollution control methods. Control methods include increasing on-site retention and infiltration of storm water, which by nature decreases the amount of pollution-bearing water from reaching natural water bodies.

To fulfill storm water regulations, prior to initiating construction the project manager must file a Notice of Intent for enrollment under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit). A draft of the new General Permit, including post-construction requirements can be found at: http://www.waterboards.ca.gov/stormwtr/constpermits.html.

Response C10: These comments on Best Management Practices and NPDES requirements are acknowledged noted. Please see *Section 3.3, Hydrology and Water Quality* of the Draft EIR for a discussion of impacts and mitigation measures related to stormwater and nonpoint source pollution during construction activities. Construction and post-construction BMPs would be modified to reflect current permit requirements at the time of project approval and implementation.

Comment C11:

Slopes exceeding 30%

The Water Board regulates disposal of solid and liquid wastes to land (such as wastewater ponds, septic systems, reclamation projects, etc.) All such disposal systems must comply with the Water Quality Control Plan, Central Coast Basin (Basin Plan), and with requirements stipulated by the California DPH. The Basin Plan sections VIII.D.3.a and i outline disposal site suitability and prohibitions.

The slope of the site could influence problems that typically occur with on-site disposal systems. The Basin Plan prohibits such disposal on slopes exceeding 30%. Minimal irrigation (only to demand) should occur, thus reducing potential impacts due to runoff. Furthermore, design of the proposed system must preclude surfacing.

If you have comments or questions regarding this matter please contact **Cecile DeMartini at (805) 542-4782 or cdemartini@waterboards.ca.gov** or Chris Adair at (805) 549-3761.

Response C11: The comment regarding land disposal of solid and liquid wastes is noted. As part of the proposed project, the SSCWD proposes to comply with all applicable Water Board regulations related to disposal of solid and liquid wastes to land and include Water Board and California DPH requirements in the final design of Phase 1 and Phase 2 improvements.

D. RESPONSES TO COMMENTS FROM THE MONTEREY BAY UNIFIED AIR POLLUTION CONTROL DISTRICT, DATED APRIL 20, 2009.

Comment D1:

The Air District submits the following comments for your consideration:

Federal Conformity. Page 152.
The Draft EIR describes the North Central Coast Air Basin (NCCAB) as being subject to federal conformity requirements. This is not correct. Upon the revocation of the federal 1-hour ozone standard on June 15, 2005, the NCCAB became designated as attainment for all federal standards. As a result, it no longer is subject to federal conformity requirements.

Response D1: The text of the EIR has been revised to indicate that the North Central Coast Air Basin is in attainment for all federal standards. Please see the text revisions to the Draft EIR, *Section 3.7, Air Quality,* in *Section 4.0,* following these responses.

Comment D2:

Federal "Maintenance" Designation. Page 155.
As described in the first paragraph, the NCCAB is now designated "attainment" for federal air quality standards.

Response D2: The text of the EIR has been revised to indicate that the NCCAB is in

attainment for federal air quality standards. Please see the text revisions to the Draft EIR, *Section 3.7, Air Quality*, in *Section 4.0,* following these responses.

Comment D3:

MM AIR 2-1. Pages 162-163.
This mitigation measure specifies that an "Operations and Maintenance Manual" (Manual) and an "Odor Minimization Plan" (Plan) would be prepared to reduce odors to a less than significant level. However, the Manual and Plan are not provided in the DEIR, despite the listing of various measures that would be incorporated into the documents; the DEIR does not provide the meaningful and timely review required by CEQA. The Air District suggests that the Final EIR include both documents, and would be glad to work with the Water District to assist in their development.

Response D3: The Operations and Maintenance Manual, including an Odor Minimization Plan, will be prepared once specific equipment is ordered for the wastewater treatment improvements at RM I, and details cannot be reasonably drafted before that time.

The CEQA Guidelines, Section 15126.4(a)(1)(B) state that: "Formulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." In order for a mitigation measure to be adequate under CEQA, it must include sufficient information to allow a reader to reach a reasonable conclusion that it would be capable of reducing the impact to a less significant level. Such information typically includes, but would not be limited to when and where the mitigation would occur, the nature of the mitigation and information as to impacts of any of the mitigation measures themselves. Although odors are not measurable to a specific performance standard, the mitigation measure in the Draft EIR includes a mechanism for minimizing the generation of odors at RM I and identifies the basic measures that will be employed, and how and when they will be implemented (including contingencies). In *Defend the Bay v. City of Irvine* (2004), the court held that an agency may defer defining the specifics of mitigation measures if it "commits itself to mitigation and lists the alternatives to be considered, analyzed and possibly incorporated in the mitigation plan."[1][2]

The key elements to be addressed in the Odor Minimization Plan at the time of final design have been identified in the Draft EIR in Mitigation Measure AQ-2.1. These include, at minimum:

- **Aeration of Solids Storage Tank.** The solids storage tank will be aerated to avoid the release of objectionable odors and will be maintained with a water cap to further contain potential odor generation. The Operations and Maintenance Manual will include

[1] Stephen L. Kostka and Michael H. Zischke, *Practice Under the California Environmental Quality Act,* Second Edition, February 2009 (Update).
[2] *Defend the Bay v. City of Irvine* (2004) 119 CA4th 1261, 1275, 15 CR3d 176.

specification of the frequency and timing of aeration of the solids storage tank.

- **Residence Time.** Solids sent to the drying beds will have undergone a 60 to 80 day solids residence time in the SBR and storage tank, resulting in a very stable sludge that will typically have a "musty" odor similar to that of composting organic material.

- **Distribution of Solids in the Drying Beds**. When solids are sent to the drying beds, relatively thin layers of sludge will be distributed to the drying beds, allowing water to be removed and evaporated from the drying areas relatively quickly, which will minimize the areas that stay wet for long periods of time.

- **Aeration and Turning of Solids in the Drying Beds.** As layers of solids build up in the drying beds, District staff will turn and aerate the piles more frequently to ensure that all of the sludge is aerated and not under anaerobic conditions.

- **Protocol for Management of Odors.** The Operation and Maintenance Manual will include a set protocol for on-site management of potential odor problems. Odor suppression chemicals will be used, if needed.

- **Odor Complaints.** The District will designate a contact person who would be responsible for responding to any local complaints about odors from the RM I facility. The contact person will determine the cause of the odor complaint (e.g., anaerobic conditions in solids beds, etc.) and will require that reasonable measures to correct the problem condition be implemented. The telephone number for the contact person at the Sunnyslope County Water District and the MBUAPCD will be visibly posted to ensure compliance with MBUAPCD Rule 402 (Nuisances).

This measure is identified as being part of the project, and has been revised to clarify the timing of implementation (please see text changes in *Section 4.0* following this section.) Both the Operations and Maintenance Manual and the Odor Minimization Plan will be completed prior to the start of operations of the improved wastewater treatment facility.

The District will consult with the Air District on the Odor Minimization Plan to be included in the Operations and Maintenance Manual for the RM I facility.

Comment D4:

MM AQ-4-1. Page 163.
Given the potential for windblown dust, the Air District suggests that the Water District consider a more complete list of measures, which follows:

- Limit grading to 8.1 acres per day, and grading and excavation to 2.2 acres per day.
- Water graded / excavated areas at least twice daily. Frequency should be based on the type of operations, soil and wind exposure.
- Prohibit all grading activities during periods of high wind (over 15 mph)
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations, and hydro-seed area.
- Haul trucks shall maintain at least 2'0" of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- Pave all roads at construction sites.

Response D4: Several of these measures are included in the project, as shown on page 163 of the Draft EIR. Additional measures have been included in the project from this list, please see the text revisions to the Draft EIR, *Section 3.7, Air Quality*, in *Section 4.0,* following these responses.

Comment D5:

MM AQ-5.1 and AQ-5.2. Page 164.
To ensure that the Air Quality Dust Control Program and Dust Abatement Program for Construction reduce impacts to a less than significant level, the Air District suggests that the Water District work with it to develop these Programs, and that MM AQ 5-1 and MM AQ 5.2 be revised to require the Air District's prior approval.

Response D5: The text of the EIR has been revised to include submittal of dust control and dust abatement programs for review by the Air District prior to implementation. Please see the text revisions to the Draft EIR, *Section 3.7, Air Quality*, in *Section 4.0,* following these responses.

Comment D6:

Appendix E. Page 6.
As specified in the first paragraph, the NCCAB is now designated attainment for federal air quality standards.

Response D6: The text of the EIR has been revised to correct the attainment statues of the NCCAB. Please see the text revisions to the Draft EIR, *Appendix E, Air Quality Report*, in *Section 4.0*, following these responses.

Comment D7:

Appendix E. Page 9.
The document specifies demolition debris. Any demolition should be discussed with the Air District before it is begun.

Response D7: Although "demolition debris" was referenced in the air quality report, included as Appendix E to the Draft EIR, the text in the Draft EIR (page 163, Mitigation Measure AQ-4.1) was revised to only refer to "debris or soils," as no demolition is anticipated as part of Phase 1 of the project.

If any unforeseen demolition of buildings or structures is required as part of the project, the SSCWD will notify the Air District before proceeding, in conformance with Air District requirements.

E. RESPONSES TO COMMENTS FROM THE SAN BENITO COUNTY WATER DISTRICT, RECEIVED APRIL 23, 2009.

Comment E1: The San Benito County Water District (SBCWD) appreciates the opportunity to provide comments on the Draft EIR for the Ridgemark Wastewater Treatment and Recycled Water Improvement Project. Please find our comments attached for your review.

We request that subsequent documents related to the project be submitted to SBCWD for our review. If you have any questions regarding our comments, please contact me at (831) 637-8218.

The comments are presented in the order and organization of the Draft Environmental Report.

Summary

The Summary states:

"The proposed project is the Implementation of a wastewater system improvement project to meet the long-term treatment and disposal needs of the Sunnyslope County Water District." While broadly accurate, this statement does not disclose to public officials and the public the specific purpose and need for this project and is not consistent with the title of the document. A statement in the following form is suggested.

The proposed project is the implementation of portions of the Hollister Urban Area Water and Wastewater Master Plan in the Sunnyslope County Water District wastewater service area and in the Sunnyslope water system service area known as the Ridgemark Wastewater Treatment and Recycled Water Improvements Project.

As proposed the Sunnyslope CWD boundaries and the wastewater and water system service areas extend beyond their current boundaries and beyond the Hollister Urban Area as adopted by San Benito County, City of Hollister and San Benito County Water District and agreed to by Sunnyslope

when it executed the amended Hollister Urban Area Water and Wastewater Memorandum of Understanding. This expansion of the Sunnyslope CWD and its wastewater and water service areas is discussed in detail in this Draft EIR.

The Draft EIR will have to be modified to include a forth right discussion of the proposed expansion of SSCWD's boundaries and services areas, address consistency with relevant plans and policies, assess any environmental impacts, provide mitigation or adopt statements of over riding considerations.

Response E1: The proposed project would serve the orange area shown on Figure 4 and the striped area shown on Figure 5 of the Draft EIR. Figure 4 has been revised to clarify the area to be served by the proposed project (see revised Figure 4 in *Section 4.0*, following this section).

In 1992, the District entered into an agreement to serve two parcels south of the Ridgemark development, contingent upon County of San Benito approval of a proposed residential development currently on file with the County. These two parcels (Lompa parcels/Scenic Southside Estates) are included in the orange shaded area and denoted with an asterisk on revised Figure 4. The proposed Phase 1 improvements would serve a population of up to 4,929 persons. This could all be within the SSCWD's existing wastewater service area or could include the adjacent Lompa parcels to the south that the District agreed to serve. A formal expansion of the District's service area would be required as part of approvals for development of these two Lompa parcels. The cumulative impacts of development of these parcels are addressed in *Section 5.0* and growth-inducing impacts are described in *Section 4.0* of the Draft EIR.

Several components of the proposed project are included in the *Hollister Urban Area Water and Wastewater Master Plan* (HUAWWMP, 2008 Draft). While the proposed project is a part of this separate plan, this EIR does not provide environmental review for the HUAWWMP. That is a separate process being undertaken by the partnership formed between the City of Hollister, San Benito County, the San Benito County Water District and the Sunnyslope County Water District. The wastewater service area and the assumptions for population growth for the Sunnyslope County Water District shown in the current draft of the HUAWWMP (2008) are similar to that of the currently proposed *Ridgemark Wastewater Treatment and Recycled Water Improvements Project* addressed in this EIR.

The EIR for the *Ridgemark Wastewater Treatment and Recycled Water Improvements Project*, as revised in this document, includes thorough discussions of SSCWD's boundaries and the proposed wastewater service area, consistency with relevant plans and policies, environmental impacts and mitigation measures.

At the time of project approval, a Statement of Overriding Considerations may be adopted by the SSCWD Board for any significant, unavoidable adverse environmental effects resulting from the project. The Statement of Overriding Considerations is made by the decision-making body at the time

of approval and is not included in the EIR.

Comment E2: The presentation of the three sub phases of the project reviewed at the project level in this EIR is a difficult read and is not consistent with the latter Table presenting the phases and level of CEQA review. Phase 1.c does not include recycled water distribution as presented in the Summary.

Response E2: Table S-1, on page v and Table 1.1-2 on page 5 of the Draft EIR are identical, and both refer to Phase 1.c as "Recycled Water Treatment at RM I and Installation of Water Distribution Pipelines." Table 1.3-2 on page 13 of the Draft EIR discusses Phase 1.c both under the headings of "Recycled Water Project" and "Salt Management Program," and includes a listing of treatment and distribution activities, as summarized in and consistent with the earlier tables.

Comment E3: The relationship of phase 2 improvements to the HUAWWMP are not clearly presented in this summary or in the body of the Draft EIR. Given the comprehensive and integrated nature of the HUAWWMP improvements and the necessary consistency between SSCWD's plan and that plan, additional effort in this area is necessary. The relationship between the phases and subphases of this project and program to the phases of the HUAWWMP must be provided and be clear.

Response E3: Per the CEQA Guidelines, Section 15123, EIR summaries should contain a brief summary of the proposed actions and consequences, and should include significant effects, proposed mitigation measures, and alternatives; areas of controversy; and issues to be resolved, including the choice of alternatives and how to mitigate effects.

Although a brief discussion of the project's relationship to regional water planning efforts is included in the Summary, a detailed discussion of the project's consistency with plans and programs is not appropriate in the Summary. This discussion is included in *Section 2.0, Consistency with Relevant Plans and Policies.* Specifically, a detailed discussion of the draft *Hollister Urban Area Water and Wastewater Master Plan* is included on pages 35-41 of the Draft EIR.

Phase 2 improvements are discussed in this document at a program-level. At the time specific potable water improvements are proposed, they will be addressed at a project-level in subsequent environmental review. This future environmental review would include a discussion of coordination and timing of the project with the HUAWWMP.

Comment E4: The summary is silent on SSCWD's intention to adopt a water softener ordinance. SSCWD is obligated under the HUAWWMP MOU to implement "rigorous source control" as a first measure to reduce TDS and achieve recycled water quality goals. That action as well as other source control obligations of SSCWD should be clearly presented in the summary.

Response E4: The water softener ordinance is listed in Table S-1 of the Summary. Please see Response E3 for a discussion of the elements that should be included in the EIR Summary.

SSCWD would adopt a water softener ordinance under the proposed project and in coordination with the other signatory members of the Memorandum of Understanding (MOU) for the *Hollister Urban Area Water and Wastewater Plan*. As noted in Response E1, the signatory members on the MOU include the San Benito County Water District, the County of San Benito, and the City of Hollister.

The SSCWD works with these agencies to coordinate source control obligations. The operation of future Phase 2 potable water improvements would provide a substantial opportunity to accelerate source control for TDS.

Comment E5:

Summary of Growth-Inducing Impacts

It is not clear from the presentation that portions of the service area of the proposed improvements are outside the current SSCWD boundaries and outside the Hollister Urban Area as adopted by the partners in the HUAWWMP MOU including SSCWD. This presentation does not disclose to public officials and the public that the proposed project includes specific capacity for lands outside the current boundaries of SSCWD and the HUA or that development of these lands is not consistent with the current County General Plan. The intended purpose and need for including these lands (Figure 4) in the proposed project should be clearly stated.

Response E5: As previously discussed in Response E1, Figure 4 has been revised to clarify the area to be served by the proposed project. The existing and proposed SSCWD wastewater service area is very similar to that show on Figure S-2 of the HUAWWP (2008 Draft). Please see the revised Figure 4 in *Section 4.0,* below, for clarification of the area to be served by the proposed project. Figure 5 shows the SSCWD's current wastewater and water service area boundaries.

Two parcels that are currently outside of the Ridgemark area served by the SSCWD and shown on revised Figure 4 may be served by the project if development and a SSCWD service area modification are approved as part of a pending residential project ("Scenic Southside Estates," File No. TSM 97-62) under consideration by the County of San Benito.

Comment E6:

Known Areas of Controversy

While there may be no current known areas of controversy. A reasonable person would conclude that the rate increases necessary to fund these improvements and the adoption and implementation of a water softener ordinance will be controversial.

There is also the issue of assessing existing customers for capacity for future service outside SSCWD and outside its wastewater and water service areas. Controversies in this area could extend to the legality under State law (Prop. 218) of assessing parcels for benefits they do not and will not receive.

Response E6: Text has been added to the EIR reflecting the SBCWD's opinion that rate increases to fund improvements and adoption and implementation of a water softener ordinance will be controversial. Please see the text revisions to the Draft EIR in *Section 4.0* following these responses.

The implementation of any rate increases by the SSCWD are subject to the requirements of state law, including Proposition 218. Proposition 218, the legality of assessments, water rates, and other related issues are not environmental issues and therefore, are beyond the scope of this EIR.

Comment E7:

Section 1.0 INTRODUCTION, BACKGROUND, AND PROJECT DESCRIPTION

1.3 PROJECT DESCRIPTION

See comments on Summary which also apply, in part, to the project description.

Response E7: Please see Responses E1-E6.

Comment E8:

1.4 PROJECT OBJECTIVES

The recent modifications to the Summary to include the Hollister Urban Area Water and Wastewater Memorandum of Understanding and the HUAWWMP must be supported by appropriate changes and additions to the text. Consideration should be given to including HUAWWMP MOU objectives in the project objectives where appropriate.

An objective for adopting a water softener ordinance to provide residential source control and eliminate unnecessary additions of minerals to the wastewater system should be added as should programs for industrial and commercial source control.

Response E8: The project objectives listed in *Section 1.3* call for planning for improvements to the SSCWD's potable water facilities, and to implement potable water improvements. They also call for implementing potable water improvements that are cost effective and affordable to District customers in terms of water and wastewater service costs.

It should be noted that, under Section 15124 of the CEQA Guidelines, the project's statement of objectives is designed to help the Lead Agency develop a reasonable range of alternatives, and should include the underlying purpose of the project. The primary objective of the project is to improve wastewater and water quality; therefore the proposed water softener ordinance is an action intended to help achieve these objectives, rather than an objective in itself.

Comment E9:

1.5 USES OF THE EIR

If this EIR will be used to demonstrate SSCWD compliance with it obligations under the HUAWWMP MOU that use should be cited. If SSCWD intends to secure the necessary agreements with San Benito County, City of Hollister and San Benito County Water District by other means that process should be identified. This is particularly the case with MOU Section 2.1.3.

"2.1.3 The selection of wastewater treatment processes and disposal methods shall include careful consideration of future wastewater disposal requirements and provision for maximum reuse of wastewater. The selection of wastewater disposal options and sites shall be agreed to by the City of Hollister, San Benito County and San Benito County Water District provided that disposal shall not:

a. Impact drinking water supplies or negatively impact adjacent land uses or property values unless full mitigated to the satisfaction of the City of Hollister, San Benito County and San Benito County Water District, or ...". See comments on Consistency with Relevant Plans and Policies and Hydrology and Water Quality.

Response E9: Individual agencies may use this EIR as part of their decision-making responsibilities under the HUAWWMP MOU. Decision-making on the HUAWWMP itself will be based upon an EIR being prepared for that document.

Text has been added to the EIR noting that the City of Hollister, San Benito County, and the San Benito County Water District may use the EIR to make decisions on wastewater and water treatment under the HUAWWMP MOU (please see revisions to *Section 1.5, Uses of the EIR,* in *Section 4.0*, below).

Comment E10:

SECTION 2.0 CONSISTENCY WITH RELEVANT PLANS AND POLICIES

2.1 GROUNDWATER MANAGEMENT PLAN

The Draft EIR states that the proposed project is consistent with Water Quality Objective 1 and Water Quality Criterion 1-1 through 1-3. The proposed project is in fact not consistent with Water Quality Criterion 1-1 through 1-3.

The Central Coast Regional Water Quality Control Board Basin Plan includes the following:

"II.A. ANTI-DEGRADATION POLICY

Whenever the existing water quality is better than the quality of water established herein as objectives, such existing quality shall be maintained unless otherwise provided by the provisions of State Water Resources Control Board Resolution No. 68-16, 'Statement of Policy with Respect to Maintaining High Quality of Waters in California' including any revisions thereto..."

"II.A.5 OBJECTIVES FOR SPECIFIC GROUND WATERS

Certain water quality objectives have been established for selected ground waters; these objectives are intended to serve as a water quality baseline for evaluating water quality management in the basin. The median values for ground waters are shown in Table 3-8.

The restrictions specified for Table 3-7 are applicable to the values indicated in Table 3-8; i.e., the values are at best representative of gross areas only.... Therefore, application of these objectives must be consistent with the objectives previously stated in this chapter and synchronously reflect the actual ground water quality naturally present. The Regional Board must afford full consideration to: (1) present and future beneficial uses affected by the waste discharge; (2) competing beneficial uses; (3) degree of impact on existing beneficial uses; (4) receiving water quality; and (5) water quality objectives, before determining priority of a dominant use and promulgating waste discharge requirements."

The wastewater percolated at the existing Ridgemark Plants and to be percolated after completion of the proposed project is, as documented in this draft EIR, clearly of much poorer quality that the water quality naturally occurring at this site and does not meet the objectives for agricultural, M&I or domestic beneficial use. This is further demonstrated by the necessity to blend the wastewater with other water to achieve a quality acceptable for golf course irrigation. This document does not present the basis for stating categorically that "The proposed project is consistent with Water Quality Objective 1 and Water Quality Criteria 1-1 through 1-3."

This issue is discussed in greater detail in the Hydrology and Water Quality Section.

Response E10: This comment discusses both objectives and criteria in the San Benito County Groundwater Management Plan (GWMP) and the Anti-Degradation Policy and objectives in the Central Coast Water Quality Control Plan. Water Quality Objective 1 and Water Quality Criteria 1-1 through 1-3 are included in the GWMP and are discussed on page 33 of the Draft EIR. The consistency of the project with Central Coast Basin Water Quality Control Plan is discussed on page 41 of *Section 2.0, Consistency* and pages 71-72 of *Section 3.3, Hydrology* of the Draft EIR.

Under the proposed project, the amount of wastewater disposed of by percolation at RM I (and RM II) would be reduced due to the recycled water component of Phase 1. This reduction in percolation of treated wastewater, in turn, would reduce the quantity of salts that would reach underlying groundwater aquifers. In addition, the District intends to treat the drinking water supply in the Ridgemark area as part of Phase 2 improvements. Since the salinity of potable water used by residents would be reduced, the resulting wastewater from residential uses is projected to have total dissolved solids of between 500-700 mg/L after the drinking water supply is demineralized.

While, as the commenter notes, the salinity and TDS of the recycled water produced by Phase 1 improvements would not be low enough in concentration to allow direct use for turf irrigation without blending, overall the water quality in underlying groundwater would improve with the project

compared to conditions without the proposed project.[3] As shown in Figure 15 of the Draft EIR, compared to future background conditions, salinity levels in groundwater are projected to decrease under the proposed project. The SSCWD believes that a decrease in groundwater salinity and use of recycled water that could replace imported water would be consistent with the GWMP criterion of managing water resources to minimize imported salts and long-term levels of groundwater salinity (Water Quality Criterion 1-1 in the GWMP) and protect beneficial uses as set forth in the RWQCB Basin Plan. As noted on page 33 of the Draft EIR, Phase 1 of the project would remove ammonia and nitrate from wastewater and the percolation of wastewater at the RM I facility would be *reduced* compared to existing conditions. The improved wastewater treatment at RM I and reduced infiltration of treated wastewater effluent for disposal would be generally consistent with protecting groundwater resources from infiltration of nitrates and salts, as well as other substances that could adversely affect groundwater quality (Water Quality Criterion 1-2 of the GWMP).

The project's consistency with Water Quality Criterion 1-3 of the GWMP is primarily related to the delivery of water to residential customers with Phase 2 improvements in place. As noted on page 33 of the Draft EIR, implementation of a water softener ordinance and potable water treatment under Phase 2 would improve the water quality of potable water supplied to residential customers (in the long-term), in keeping with Water Quality Criterion 1-3 of the GWMP. For the recycled water to be used at the golf course, the salinity goal for blended recycled water (under Phase 1) and non-blended recycled water (under Phase 2) is 500-700 mg/L total dissolved solids. Text has been added to the EIR to clarify that the salinity goal for recycled water under the project includes a range of concentrations that is higher than the DHS Recommended Limit for Customer Acceptance of 500 mg/L TDS.

For this reason, the text of the consistency discussion has been revised to indicate that the proposed project is *generally* consistent with Water Quality Objective 1 and Water Quality Criteria 1-1 through 1-3. The salinity goal for blended recycled water under Phase 1 and (non-blended) recycled water under Phase 2 of 500-700 mg/l total dissolved solids (TDS) may not fully meet secondary water quality objectives for salinity such as the DHS's Recommended Limit for Consumer Acceptance of 500 mg/l TDS.

Comment E11:

2.2 HOLLISTER URBAN AREA WATER AND WASTEWATER MASTER PLAN

This presentation would be improved by adding the fact that the HUAWWMP MOU was amended to include SSCWD and adopted by all parties. The amendments are critical to this project and the presentation must be modified to reflect those amendments.

[3] With the full implementation of potable water improvements under Phase 2, blending of recycled water should not be required for use of recycled water at the golf course.

HUAWWMP MOU Objective 2.2.4 has been amended to read:

"This provision shall not preclude satellite wastewater separation plants for the recovery of water for local recycling or the upgrading of the SSCWD Ridgemark Estates Wastewater Treatment Plants for local recycling, including but not limited to the Ridgemark Golf Course."

Without this amendment, the proposed project would not be consistent with the HUAWWMP MOU. Before the amendment, the only exception to centralized treatment was "Satellite wastewater separation plants". The proposed project plant is not a "satellite wastewater separation plant".

Response E11: The comment regarding Objective 2.2.4 of the HUAWWMP MOU is acknowledged. Please note that the section does state that the SSCWD has become a party to the MOU.

Comment E12: HUAWWMP MOU Section 2.1.3 requires that the selection of treatment process and disposal methods carefully consider ... maximum reuse of wastewater. To claim consistency with this section SSCWD must demonstrate that the treatment process carefully considered maximum reuse of wastewater and why it is not achieving maximum reuse of wastewater.

Further, consistency with HUAWWMP MOU Section 2.1.3 can only be achieved by agreement with San Benito County, the City of Hollister and San Benito County Water District and their satisfaction with the mitigation of any impacts on drinking water supplies or negative impacts on adjacent land uses and property values.

How does SSCWD propose to secure these agreements and satisfactions?

Response E12: The District chose the treatment processes described in the Draft EIR to meet RWQCB discharge requirements and to maximize the reuse of wastewater while meeting objectives for cost effectiveness. The wastewater process of a sequential batch reactor combined with filtration and ultraviolet disinfection was chosen to maximize recycling of wastewater under State of California standards.

There are two primary limitations on the reuse of recycled water from RM I; salinity of the recycled water and seasonal irrigation demands. Under Phase 1, it is anticipated that virtually all of the recycled water from RM I would be blended with groundwater or imported water during the summer months and used at the Ridgemark golf course. Phase 2 improvements would allow direct use of recycled water on the golf course without blending. There will be limited or no seasonal demand for irrigation water at the Ridgemark golf course during the winter months.

Consistency of the project with the HUAWWMP MOU ultimately will be determined by the agencies that are party to that agreement.

Comment E13: Consistency of the proposed project with Section 2.2.3 which states "This objective shall be met first by rigorous source control including, but not limited to, the elimination of on-site regenerating water softeners and second by demineralization. ... The recycled wastewater objective shall be met by the two measures identified above and the objectives of Section 2.2.2 as soon as practical and not latter than by 2015."

SSCWD's proposed project is not consistent with this objective. The proposed project includes no rigorous source control as a first measure and in fact delays the elimination of on-site water softeners until after 2015 and possible until 2040.

Response E13: As noted in Response E4, implementation of a water softener ordinance is included in Phase 2 of the project. Various other source controls are also planned for in Phase 2. While the overall timeframe for implementing Phase 2 improvements noted on page 24 of the Draft EIR is 2011-2040, it is anticipated that water softening measures would be implemented in the near term (by 2015). Please refer to Table S-1 and Table 1.3-2 in the Draft EIR.

Comment E14: Consistency with the remaining sections of the HUAWWMP MOU depend upon consistency with Section 2.1.3 and acceptance of future actions by SSCWD addressed only at a program level at this time. Clear presentation of the phasing and speculative nature of the future phases addressed at a program level is essential to the public official and public reader.

Response E14: Phase 2 actions are discussed at a program-level precisely because the exact location and methods of these improvements have not been finalized. Once the nature of these activities have been determined, project-level CEQA review will be completed, which will include discussion of the consistency of the future project with the HUAWWMP and other policies and plans.

Actions proposed under Phases 1.a, 1.b, and 1.c of the proposed project are shown in Table S-1 of the Draft EIR. Phase 2 improvements for the Ridgemark pressure zone would be accomplished as soon as possible in coordination with affected agencies with oversight over water and wastewater in the area.

Comment E15:

2.5 COUNTY OF SAN BENITO GENERAL PLAN

The matter of SSCWD's intent with respect to including an expanded service area in this EIR requires clarification to determine consistency with the San Benito General Plan and the accuracy of statements in this section.

Does SSCWD have request for service from these landowners? Does SSCWD have contractual obligations to these landowners to support extension of water and wastewater service? Why does this proposed project include expansion of SSCWD boundaries and services areas at this time.

Response E15: As described in Response E1, the proposed project would serve the orange area shown on Figure 4 and the striped area shown on Figure 5 of the Draft EIR. Figure 4 has been revised to clarify the area to be served by the proposed project (see revised Figure 4 in Section 4.0, following this section).

In 1992, the District entered into an agreement to serve two parcels south of the Ridgemark development, contingent upon County of San Benito approval of a proposed residential development currently on file with the County. The expansion of the SSCWD's designated water and wastewater service areas to

include the two Lompa parcels will be conducted through LAFCO, as part of the planning process for the development of the Lompa properties. The proposed wastewater improvements could serve future growth on these parcels; however, the project does not include the formal expansion of the District's water or wastewater service areas prior to completion of the planning process for these parcels, and the text and graphics have been revised to clarify this.

Comment E16:

3.1 Land Use

Section 3.1.2.4 discusses impacts to land uses including prime farmland, but does not acknowledge any impact from the siting of brine evaporation ponds near a residential area. Nor does it mention that the site considered has an agricultural conservation easement attached to it.

Response E16: As discussed in this section, the location of the Phase 2 potable water improvements has not been determined at this time. This section of the EIR does discuss setbacks from residences and sensitive receptors, if evaporation ponds are utilized in a future potable water project. Impacts to specific properties from Phase 2 improvements would be analyzed in future project-level CEQA review.

An open space agricultural conservation easement is reportedly in place on the Campisi parcel, one of two sites shown on Figure 3 of the Draft EIR as a potential potable water project site. The text of the EIR has been revised to include a reference to the easement (please see *Section 4.0* of this document). A site or sites for Phase 2 improvements has not been selected by the SSCWD. Future Phase 2 improvement projects will need to consider legal entitlements and restrictions for each specific property as a part of the planning process prior to development.

Comment E17:

3.3 HYDROLOGY AND WATER QUALITY

The presentation and environmental review of water quality needs to be expanded to disclose for public officials and the public that SSCWD's existing and proposed wastewater disposal impacts groundwater quality and the extent to which it does so. Limiting the assessment to salinity is not adequate.

The presentation of RWQCB Discharge Requirements for Ridgemark Estates (Order No. R3-2004-0065) is incomplete and misleading. The presentation excludes the "Groundwater Limitations" of the order which prohibit specific impacts on the underlying groundwater. These limitations must be addressed.

The Groundwater Limitations of the Order include: "7. The discharge shall not cause a statistically significant increase of mineral or organic constituent concentrations in the underlying groundwater, as determined by statistical analysis of samples collected from wells in the vicinity of the disposal area."

In the section of this draft EIR entitled "Salinity" the following statement is made "Data from three shallow monitoring wells that appear to represent ambient shallow groundwater quality upgradient of Ridgemark I and II wastewater facilities have TDS concentrations generally in the 600 - 700 mg/l range. Salinity in the Ridgemark area is approximately 600 - 800 TDS with plumes of up to 1600 mg/l down gradient of the RM I and RM II percolation ponds." Groundwater modeling done by Gus Yates assumes a wastewater discharge quality of 600 mg/l, with a starting water quality delivered to customers of 250 mg/l. Given the difficulty to demineralize groundwater to that level it is likely that the wastewater discharge TDS will be significantly higher than 600 mg/l TDS. Therefore, the impacts to groundwater may be significantly understated.

Response E17: The District has discussed the proposed project with the Regional Water Quality Control Board as it relates to Order R3-2004-0065. Comments received by the District on the Draft EIR from the RWQCB have been received, and the RWQCB has requested that the District proceeds with implementation of the project in an expedited manner. Specific comments on the DEIR by the RWQCB are contained in a letter dated April 17, 2009 (please see Comment C3, above).

Concentrations of mineral or organic constituents in the underlying groundwater from wastewater discharges are not projected to increase under the proposed project. Groundwater quality in the project area would be improved in two ways from implementation of the proposed project improvements. First, the wastewater which would be percolated in the future would be of higher quality than wastewater which is currently being percolated. Secondly, less wastewater will be percolated in the future when a portion of the treated wastewater would be used to provide recycled water to the golf course for irrigation. To illustrate the anticipated change in mineral and organic constituent loading, estimates for loading from wastewater effluent percolation under existing conditions and with the proposed Ridgemark wastewater treatment improvements are shown in the table on the following page.

Ridgemark Wastewater Treatment Plant: Quantities of Mineral or Organic Constituents Percolated in Treated Wastewater				
		2008	2025	2025
Constituent	**Parameter[1]**	**Amount Percolated[2]**	**Amount Percolated: RWQCB Permitted**	**Amount Percolated: Design Estimate Projection**
		Amount in Kilograms		
1	BOD	11,427	4,876	
2	TSS	23,230	4,876	
3	Nitrate	1,262	813	325
4	Ammonia	7,318	813	228
5	TDS	829,410	195,048	81,270
6	Sodium	208,153	32,508	13,816
7	Chlorine	307,878	32,508	9,752

Notes:
[1]Parameters listed in Wastewater Discharge Requirements (WDRs) for SSCWD Ridgemark facilities.
[2] Amount percolated at both RM I and RM II in 2008. Under future conditions, percolation in the Ridgemark area would be at the RM I facility only.

The second part of this comment addresses two subsections of the EIR; existing conditions and project impacts. The text quoted in this comment is from the existing conditions discussion of the *Hydrology and Water Quality* section on page 85 of the Draft EIR and describes existing conditions in three wells upgradient of RM I and RM II. The commenter does not raise any issues in regard to the EIR's description of existing conditions.

The commenter concludes that based on the assumptions used in the groundwater modeling for the project that impacts to groundwater may be understated. The assumptions for wastewater discharge quality under project conditions were made by the SSCWD and a professional hydrologist. They are estimates given that the exact details and timing of potable water improvements are not known at this time. The SSCWD believes that the 600 mg/L TDS is a reasonable assumption with demineralization of potable water in the project area.

Given the uncertainties of the timing of implementation and extent of Phase 2 improvements, additional modeling is included in the EIR to provide information to the decision-makers and the public. As discussed on pages 91 and 97 of the Draft EIR, a scenario where no demineralization would be employed was also modeled. There would be a slight increase (less than 100 mg/L to about 800 mg/L TDS) downgradient of RM I after 30 years, however this is within the TDS objective of 1,200 mg/L in the RWQCB's Basin Plan and would not be a significant impact compared to existing conditions. In other words, even if the 600 mg/L TDS assumption for wastewater discharge quality would not be met by future potable water improvements, the project

would not result in a new significant impact to groundwater, not previously identified in the EIR.

Comment E18: The impact of current and proposed discharge to the groundwater by percolation clearly causes a "statistically significant" increase in the mineral concentrations of the underlying groundwater when compared to the upgradient groundwater quality as reported in the screen check draft EIR. As such the proposed project does not meet the requirements of Order No. R3-2004-0065. The EIR must address each of the "Groundwater Limitations" in the Order, including but not limited to mineral constituents and nutrients.

Response E18: Please see Response E17, above.

Comment E19: Tests run for SBCWD demonstrated that PPCPs found in SSCWD wastewater were also found in drinking water wells down gradient from RMI.

From the groundwater modeling the area of impact from existing and future wastewater disposal can be inferred and includes impacts on numerous existing wells including Ridgemark Golf Course wells, Sunnyslope CWD drinking water wells (existing and future), and ag and individual drinking water wells (Figure 11 and Figure 14).

Response E19: Pharmaceuticals and Personal Care Products as Pollutants (PPCPs) refers, in general, to any product used by individuals for personal health or cosmetic reasons or used by agribusiness to enhance growth or health of livestock. PPCPs comprise thousands of chemical substances, including prescription and over-the-counter therapeutic drugs, veterinary drugs, fragrances, and cosmetics. PPCPs in the environment are frequently found in aquatic environments because PPCPs dissolve easily and don't evaporate at normal temperature and pressures.

To date, scientists have found no evidence of adverse human health effects from PPCPs in the environment.[4] Currently, no standards or thresholds of significance have been adopted for PPCPs by any of the governmental agencies with jurisdiction in the area.

Although PPCPs can occur anywhere drugs or personal care products are used, the District's water service area does not contain facilities such as hospitals, clinics, schools, large-scale agriculture (such as dairies, poultry farms, or other intensive livestock operations), or industrial buildings which are known to be concentrated sources of PPCP contaminants.

Percolation and groundwater quality is discussed in *Section 3.3, Hydrology and Water Quality* and Appendix C of the DEIR, *Groundwater Analysis Report.* In regard to pharmaceuticals and personal care products, the proposed wastewater treatment project will reduce percolation of groundwater from the current 78 million gallons to 43 million gallons in 2025, as shown in Table 1.3-4 of the DEIR. Consequently, the volume of percolation will be diminished by approximately 45 percent. This reduction

[4] U.S. Environmental Protection Agency, *Pharmaceuticals and Personal Care Products (PPCPs),* http://www.epa.gov/ppcp/, accessed May 14, 2009.

in percolation volume to approximately 55 percent of current levels would result in a corresponding drop in pharmaceuticals and personal care products that could reach groundwater. In addition to the reduced amount of water being percolated, the proposed wastewater facility would be equipped with equipment to oxidize wastewater and further disinfect wastewater with ultraviolet radiation, which also could reduce the amount of some pharmaceuticals and personal care products in wastewater.

In Phase 2 of the project, future drinking water wells would be equipped with some degree of reverse osmosis treatment in order to remove sodium, chloride, calcium and magnesium. In addition to removing these elements, the reverse osmosis process on the drinking water would further lower or eliminate the amount of pharmaceuticals and personal care products in the drinking water.

Finally, if regulations on pharmaceuticals and personal care products are enacted in the future by the Regional Water Quality Control Board, these standards would be incorporated into future waste discharge permit requirements for the Ridgemark wastewater permit.

The text and graphics of the EIR has been revised to address the concern raised in this comment. Please see the text revisions to the Draft EIR in *Section 4.0,* following these responses.

Comment E20: There are clearly impacts on beneficial uses and users of groundwater adjacent to RMI. This is the site selected for future disposal by percolation. The groundwater quality as impacted by wastewater percolation must be compared to the local and basin plan standards for the beneficial uses adjacent to the disposal site and for compliance with Order No. R3-2004-0065. From this the "thresholds of significance" can be applied qualitatively, impacts determined and disclosed. Mitigations can then be developed and proposed.

The EIR should include presentation of representative water quality analysis from SSCWD monitoring wells, from area drinking water wells and other monitoring wells, including but not limited to Granite Rock, Southside Quarry and Cielo Vista Estates.

Among the mitigation measures SSCWD must consider extending treated drinking water to the residences along Southside road that are or may be impacted by its current and continued wastewater disposal.

SSCWD must also implement detailed water quality monitoring and analysis to determine the extent to which current and proposed wastewater disposal impacts the drink water delivered to their customers.

The acceptability of these impacts and mitigation measures must be agreed to by San Benito County, the City of Hollister and San Benito County Water District.

Response E20: As described in Responses E17 and E19 above, the amount of treated wastewater disposed of by percolation at RM I would decrease under the proposed project and the potential for impacts to beneficial uses of groundwater would be reduced compared to existing conditions.

The overview of groundwater quality on page 85 notes the primary constituents of concern in the vicinity of the RM I and RM II facilities: salinity, sodium, chloride, and nitrate. Annual water quality results for SSCWD wells are available on the SSCWD website at http://www.sscwd.org/info.html. All 2008 water samples met current state and federal drinking water standards.

Southside Quarry (Granite Rock) and Cielo Vista Estates are located east of the Ridgemark area, over one mile distant and upgradient from RM I. Based upon existing conditions and modeling included in the EIR, it is not anticipated that implementation of the proposed project would adversely impact wells at these locations.

As noted above, the potential for impacts to beneficial uses of groundwater would be reduced under the proposed project, compared to existing conditions. The concentration of constituents such as nitrate would decrease in the near term, and with the future implementation of Phase 2 potable water improvements, total dissolved solids (and sodium and chloride concentrations) would also decline. While percolation of treated wastewater would continue at RM I, the commenter has not provided any additional justification for more analysis or mitigation measures to be included in the EIR or the proposed project. As described in Response E19, there are no standards or thresholds of significance for Pharmaceutical and Personal Care Products (PPCPs) and these compounds are not routinely assessed in drinking water samples. In the event regulations on these compounds are enacted in the future, they would be incorporated into future waste discharge permit requirements.

The SSCWD will continue to coordinate with other local agencies (such as the County of San Benito, City of Hollister, and San Benito County Water District) that have oversight over water and wastewater in the area under the HUAWWMP MOU.

Comment E21: The fact that the regional Board, in weighing the factors they weigh, allowed discharge at 1200 mg/l TDS is not necessarily the weighing of factors or end result for local interests.

The extent and nature of water quality impacts must be more completely and clearly described and assessed in this EIR including the condition where phase 2 improvements are not implemented.

Response E21: The District intends to construct Phase 2 improvements as soon as possible in coordination with the San Benito County Water District, the City of Hollister, and the County of San Benito. The RWQCB has provided waste discharge requirements to the District, as detailed in Order No. R3-2004-0065. These waste discharge requirements will be reviewed again periodically by the RWQCB. The waste discharge requirements by the RWQCB have taken into consideration all aspects of water quality and beneficial use.

The intent of the project is to comply with all requirements of the RWQCB Order No. R3-2004-0065. Future modifications of the waste discharge

requirements by the RWQCB will take into consideration impacts on water quality and beneficial use. Future waste discharge requirements may include requirements for emerging contaminants, such as PPCPs.

The EIR includes a range of scenarios to inform decision-makers and the public of the possible effects of implementing or not implementing the project. A scenario where Phase 2 improvements are not implemented is addressed in the EIR. The potential effects of the project without salinity improvements (Phase 2) are described on page 97, *Section 3.3.3.4* of the Draft EIR), and in Appendix C, Scenario 4C. The impacts of not implementing Phase 1 and Phase 2 improvements are described in the No Project Alternative discussion (*Section 6.2* of the Draft EIR) and in Appendix C, Scenario 2. Due to higher rates of percolation than under existing conditions, salinity levels in groundwater in the vicinity of RM I would be higher under the No Project Condition than the No Phase 2 improvements scenario (Scenario 4C). While modeling for all constituents in the RWQCB Order No. R3-2004-0065 was not completed, improvement to the quality of wastewater effluent from implementation of Phase 1 and Phase 2 improvements is described and documented throughout the EIR. Please also refer to Responses E17 and E19 for a discussion of groundwater quality constituents other than salinity.

Comment E22:

SECTION 4.0 GROWTH-INDUCING IMPACTS

This presentation states "The proposed project is designed to serve existing land uses and future growth allowed under the County of San Benito General Plan, in accordance with the adopted San Benito County Growth Management System. There must be clarification concerning the relationship between the proposed capacity and water and wastewater service to the expanded service area which includes land outside the Hollister Urban Area and outside SSCWD existing boundaries.

Response E22: Please see Response E1, above.

Comment E23: The report and ground water modeling ignore the fact that the Ridgemark Golf Course wells, SSCWD wells, ag wells and individual drinking water wells currently extract percolated wastewater, accordingly the quantity of wastewater recycled can not be identified as an increase in area water supply and can not be used to offset induced growth impacts. A much more rigorous analysis would be required to quantify any increase in area water supply.

Response E23: The District acknowledges that wastewater is currently percolated into the groundwater basin, and that the diversion of this wastewater from the groundwater basin to recycled water irrigation may not increase the water supply. Further, rigorous, long-term studies could provide a better evaluation of the effect on recycled water upon the long-term water supply.

Modeling of groundwater levels with the assumed population growth in the Ridgemark area did not show a substantial change in groundwater levels or supply. Text has been added to the Cumulative and Growth-Inducing Impacts sections of the EIR to clarify that individual development projects

may require an assessment of water supply, in accordance with the State Water Code. Please see text revisions in Section 4.0. following these responses.

Comment E24:

5.3.4.2 Impacts from the Project (Changes in Emissions of Greenhouse Gases)

In considering the operational emissions can you take a credit for reduced groundwater pumping and/or San Felipe water pumping as a result of the use of recycled water? If so SBCWD as information of the energy used to delivery water from the Delta to SBCWD and for distribution system pumping.

Response E24: The District would appreciate receiving energy consumption information from the San Benito County Water District regarding energy used to pump Delta water to the Ridgemark Golf Course, in order to calculate how much energy would be saved by utilizing recycled wastewater to replace imported Delta water from the SBCWD.

It can be noted, however, that Delta water delivered from the San Luis Reservoir would need to be pumped upgradient approximately 340 feet in elevation to reach the Ridgemark Golf Course, while recycled water provided from the proposed improvements would not require this additional energy expenditure.

F. RESPONSES TO COMMENTS FROM THE CITY OF HOLLISTER, CALIFORNIA, RECEIVED APRIL 24, 2009.

Comment F1: The City of Hollister received a Draft Environmental Impact Report for the Sunnyslope County Water District Ridgemark Wastewater Treatment and Recycled Water Improvements Project. The City of Hollister submits the following comments on the Draft EIR.

Project Description Section 1.31, Figures 4 and 5 and Growth Inducing Impacts:

The City of Hollister requests the following revisions to Figure 4 to correct factual errors and avoid confusion:

1. Eliminate the pink shaded areas identified as 'City of Hollister Proposes to Serve Pink Parcel' for the following reasons.

    a. The new City of Hollister regional wastewater treatment facility could serve all lands within the boundary shown on Figure 4 as the 'Hollister Service Area Boundary'. This includes the areas shaded orange and some lands that are shaded pink and white. This should be clearly shown on Figure 4 and explained in the project description.

    b. Figure 4 gives the impression that that the City of Hollister is proposing to provide wastewater service to over 500 acres of lands that are shaded pink that are outside of the Hollister Service Area Boundary. These parcels (identified as lands of Nino and Lima -APNs 25-19-32, 25-19-33, 25-20-01 and portions of 25-20-64) are outside of the Hollister Service Area Boundary and were not included in the MOU, the Long

Term Wastewater Treatment Master Plan and Urban Water Master Plan. The City of Hollister has not approved plans and does not propose as part of this project to serve lands outside of the Hollister Service Area Boundary. Please correct the map.

c. Figure 4 includes some selected lands with pink shading located within the Hollister Service Area boundary as areas that the City of Hollister proposes to provide wastewater service. The City of Hollister approved regional wastewater treatment facility could provide service over time to all lands within the Hollister Service Area Boundary, not just the lands shaded pink identified as Dividend Homes, Gavilan College, Mohehuddin, High School and the Cielo Vista Estates subdivision. Elimination of the pink shading will avoid confusion about service areas.

Response F1: The text and graphics of the EIR have been revised to clarify the area to be served by the proposed project. References to City of Hollister service areas have been removed. Please see the text revisions to the Draft EIR and Figure 4 in *Section 4.0,* following these responses.

Comment F2:

2. Figure 4 illustrates roughly 285 acres of 'blue parcels' noted as 'Lompa' and 'Lima' that the District intends to provide wastewater disposal service to in the long-term. The properties are outside of the Sunnyslope County Water District Sphere of Influence illustrated on Figure 5 and are outside of the Hollister Urban Water Master Plan Water Service Area (see attached map). Please explain in the project description whether the District intends to expand the Sphere of Influence to provide water as well as sewer service to the lands shaded blue. Please revise the project description to quantify the following: 1) acreage of land outside the Sunnyslope County Water District Sphere of Influence that the district intends to provide wastewater service and/or water service; 2) the anticipated land use and development density; 3) the anticipated timing/phasing for service and necessary infrastructure improvements; 4) types of planning approvals required for the anticipated land use; 5) if water service is anticipated, include a description of the additional water supply capacity improvements required.

Response F2: The District does not intend to expand its water service area to the properties shaded blue in Figure 4 under the scope of the proposed project. The text and graphics of the EIR have been revised to clarify the area to be served by the proposed project. Please see the text revisions to the Draft EIR and Figure 4 in *Section 4.0,* following these responses. The Sphere of Influence for water service is shown on Figure 5.

As previously discussed in Response E1 and Response E15, the District entered into an agreement to serve two parcels south of the Ridgemark development in 1992, contingent upon County of San Benito approval of a proposed residential development (Lompa/Scenic Southside Estates) currently on file with the County. Any expansion of the District's designated water and wastewater service areas and/or Sphere of Influence to include the two parcels within the orange shaded area will be conducted through LAFCO, as part of the planning process for the development of the Lompa/Scenic Southside Estates properties. The proposed wastewater improvements could serve future growth on these parcels; however, the

project does not include the formal expansion of the District's water or wastewater service areas prior to completion of the planning process for these parcels, and the text and graphics have been revised to clarify this.

Information on the Lompa/Scenic Southside Estates parcels is provided below.

- The two Lompa parcels contain approximately 9.5 acres (western parcel) and 38 acres (eastern parcel). The anticipated land use is residential, with an anticipated buildout of approximately 100 residential units.

- The timing and phasing for provision of services; and details on necessary infrastructure improvements are not known at this time as a residential project on these parcels has not been approved. On-site infrastructure could include new roads, water and sewer lines, and electric, gas, telephone and cable utilities. The impacts of these improvements will need to be assessed as a part of the Scenic Southside Estates environmental review.

- Planning approvals for the two parcels are under the jurisdiction of the County of San Benito and could include a General Plan amendment, zoning, building permits, and LAFCO approval of water and wastewater service areas.

- There is an existing SSCWD water well (Well #8) on the north border of one of the parcels. It is anticipated that development would be served by existing groundwater supplies. Water supply will need to be addressed in detail as a part of environmental review for any future development on the two parcels.

Comment F3:

3. Figure 4 shows a long-term wastewater service area outside of the Sunnyslope County Water District Sphere of Influence and the Hollister Service Area Boundary. Please evaluate the following in the Final EIR: 1) the district's ability to provide water and wastewater to the existing service area/SOI; 2) the net increase in the demand for wastewater and water service to lands outside of the District's SOI and Hollister Service Area Boundary; 3) the growth inducing impacts of a potential SOI expansion 4) the near-term and long-term cumulative impacts to the City of Hollister water supply system capacity as a back-up water service provider 5) consistency with local and regional plans.

Response F3: As noted in Response F2, above, provision of wastewater services by the District to the properties shaded blue in Figure 4, which are outside the District's Sphere of Influence and Hollister Service Area Boundary, is not included in this EIR. The figure has been revised to remove the blue shading.

The text and graphics of the EIR have been revised to address the concerns raised in this comment. Please see the text revisions to the Draft EIR and Figure 4 in *Section 4.0,* following these responses.

Comment F4: Please clarify in the project description and Section 1.5, Uses of the EIR whether the EIR is intended to serve as a basis for expansion of the Sphere of Influence for water supply and sewer collection. If so, this was not clear in the Notice of Preparation project description and the EIR should be re-circulated and clearly documented with supporting environmental analysis.

Response F4: As noted in Responses F1-F3 above, the project does not include expansion of the Sphere of Influence for water supply and sewer collection for the Sunnyslope County Water District in the blue shaded parcels on Figure 4 of the Draft EIR.

As discussed in Responses E15 and F2, the proposed wastewater improvements could serve future growth on the two Lompa parcels that the SSCWD agreed to serve in 1992; however, the project does not include a formal expansion of the District's water or wastewater service areas prior to completion of the planning process for these parcels. The agreement to serve these parcels is contingent upon approval of proposed residential development currently on file with the County of San Benito. For this reason, the two parcels were included in the possible service area and population projections for the project addressed in the EIR. LAFCO has adopted a Sphere of Influence for water service but not wastewater treatment for the SSCWD.

It should be noted that proposed Phase 1 improvements would serve a population of up to 4,929 persons. This could all be within the SSCWD's existing wastewater service area or could include the adjacent Lompa parcels to the south that the District has agreed to serve.

Under the CEQA Guidelines Section 15088.5, recirculation of an EIR prior to certification is required if significant new information is added to an EIR that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of a project or a feasible way to mitigate or avoid such an effect. Recirculation is not required where new information is added to the EIR that clarifies information.

The project does not include a formal expansion of SSCWD service areas and expansion of the service areas is not required for the proposed improvements to be implemented. The area that could be served by the project was disclosed in the Draft EIR (the orange area on Figure 4 has not changed) and the possible impacts of induced growth were also disclosed in the Draft EIR. For these reasons, recirculation of the Notice of Preparation and environmental analysis is not required.

Comment F5: Page 6, sentence 2 states that the population in the SSCWD to be served by the wastewater treatment plant is projected to increase from 1,929 persons to 4,929 persons by 2025 – about 3,000 persons. Please quantify the amount of growth anticipated from the 'orange - near term' parcels shown on Figure 4 and the amount if any growth that is proposed by the SSCWD outside of the adopted Sphere of Influence.

Response F5: The future increase in the population served by the District's wastewater facilities is planned entirely within the "orange – near term" parcels shown on Figure 4. As described on page 6 of the Draft EIR, the proposed modifications to the SSCWD system would allow for a population increase of approximately 1,929 to approximately 4,929 persons. All of this project growth would be within the orange-shaded area on Figure 4. An estimated growth of approximately 110 households could occur with the development of the Lompa parcels (Scenic Southside Estates) that the District agreed to serve, pending approval by the County of San Benito. These parcels are currently outside the District's Sphere of Influence for water service. Please see the text revisions to the Draft EIR and Figure 4 in *Section 4.0*, following these responses.

Comment F6: It is suggested a meeting with the Sunnyslope County Water District, San Benito County Planning and the City of Hollister be scheduled to clarify the relationship of growth areas shown on Figure 4 (blue and pink) to existing planning documents and how the growth inducing impacts will be addressed in the DEIR.

Response F6: As discussed in Responses F1-F5, the "blue and pink" areas shown on Figure 4 have been removed, in order to clarify the area proposed to be served by the project. The growth-inducing impacts of development within the SSCWD's wastewater service area (orange shading on revised Figure 4) are discussed on pages 199-203 of the Draft EIR. Staff of the SSCWD has met with City of Hollister staff and are available to meet with other agencies regarding this comment. Future meetings will be scheduled to coordinate wastewater service areas with the City of Hollister and San Benito County in the light of the County's General Plan update process. Since the project does not propose to serve either the blue or pink shaded areas, no further response is required.

Comment F7:

<u>Section 2.0 Consistency with Relevant Plans and Policies:</u>
The City of Hollister has the following comments regarding the consistency analysis with the Memorandum of Understanding Hollister Urban Area Water and Wastewater Master Plan (MOU).

Principle 2.1.3 subsections b states that wastewater treatment processes and disposal methods shall be consistent with applicable General Plans or policies including preservation of agricultural land. The DEIR does not evaluate the consistency of the proposed service outside of the Sunnyslope County Water District Sphere of Influence with the San Benito County General Plan.

Response F7: The comment regarding consistency with applicable General Plans or policies including preservation of agricultural land is noted. Principle 2.1.3 and the discussion on page 38 of the Draft EIR focus on wastewater treatment processes and disposal methods (such as the proposed Phase 1 and Phase 2 improvements) rather than indirect land use impacts of growth allowed by population or job growth. The indirect effects of the project, including growth inducement and loss of agricultural land, are discussed in *Section 4.2.3.1* of the Draft EIR. The EIR notes that possible future residential development southeast of RM I on top of the bluff above the San Benito

River (the Lompa parcels) could result in the loss of approximately 36 acres of Prime Farmland. As discussed in Response F1 above, the proposed project is not designed to serve other areas beyond the SSCWD's existing service area.

Comment F8: Principle 2.1.7 states that impacts of water supply and treatment and wastewater treatment and disposal to preservation of agriculture and agricultural land shall be carefully evaluated and minimized. The proposed locations for Potential Potable Water Projects Sites (Phase II) are located on prime agricultural lands. One of the brine fields (Campisi) is the open space agricultural conservation easement established by a Planned Unit Development. The use of this property conflicts with the agricultural conservation easement and Principle 2.1.7. For consistency, add alternative potable water project sites in the FEIR that are consistent with Principle 2.1.7.

Response F8: The text of the EIR has been revised to include the reference to the aforementioned conservation easement, please see *Section 4.0* of this document.

The sites identified in the EIR for possible Phase 2 use for potable water improvements are evaluated at a program-level and may not be the locations ultimately selected for potable water improvement projects. Other alternative properties for the future Phase 2 improvements are discussed in *Section 6.2, Phase 2 Improvements: Alternative Locations*, beginning on page 230 of the Draft EIR.

Comment F9: Principle 2.1.7 also states that impacts of water supply and treatment and wastewater treatment and disposal shall consider rates and charges including connection/impact fees and property values. The consistency analysis lacks an evaluation of the feasibility of all phases of the project with and without proposed expansion outside of the existing Sunnyslope County Water District Sphere of Influence.

Response F9: The costs of water and wastewater improvements are included in the SSCWD's *Wastewater Rate and Connection Fee Study* and *Basis of Design Report* prepared for the project, which will be assessed by the District decision-makers. Additional cost information will be prepared and analyzed for the future potable water improvements when the Phase 2 improvements are designed and analyzed at a project-level. Rates and charges are economic issues, rather than environmental impacts, and are not required to be included in the EIR.

Comment F10:

Section 6.0 Alternatives to the Proposed Project: In order to maintain consistency with other regional wastewater and water long-term planning efforts, please amend the alternatives analysis to include discussion of connection to the City of Hollister regional wastewater treatment facility.

The City of Hollister thanks the Sunnyslope County Water District for the extension of time to submit written comments. We are available to meet and discuss the submitted comments if you have any questions or would like clarification.

Response F10: A connection to the City of Hollister regional wastewater treatment facility has been discussed in the past by the District and the City of Hollister. Connection to the City of Hollister wastewater treatment facility would not reduce the significant unavoidable growth-inducing impacts of the project resulting from Phase 1 improvements. It would reduce or avoid significant construction noise, air quality, water quality, and biological resources impacts in the Ridgemark area, as well as possible odor impacts during operation of RM I. All of these impacts can be reduced to a less than significant level with measures included in the proposed project. Connection to the Hollister wastewater treatment facility would require the construction of approximately 7,000 feet of new pipelines to connect to one of the pump stations of the City of Hollister's system, and if recycled water was provided to Ridgemark golf course for irrigation, several miles of additional pipeline would be required to convey water to the Ridgemark area from the closest planned City of Hollister recycled water lines. Construction impacts associated with the pipelines would be greater than the proposed project due to increased pipeline lengths and possible crossings of creeks or other sensitive habitats.

Impacts from potable water improvements (Phase 2) would be similar to the proposed project unless a regional facility was utilized. For these reasons, connection of the residential and commercial users in the Ridgemark area to the Hollister wastewater treatment facility instead of constructing Phase 1 improvements at RM I would not be clearly environmentally superior to the proposed project. The EIR has been revised to include a discussion of connection to the City of Hollister regional wastewater treatment facility, please see *Section 4.0*, below, for text revisions.

G. RESPONSES TO COMMENTS FROM THE RIDGEMARK HOMES ASSOCIATION, DATED APRIL 21, 2009.

Comment G1: A RESOLUTION OPPOSING THE PLANNED ROUTES OF A NEW PIPELINE FOR THE DISTRIBUTION OF RECYCLED WATER USING THE STREETS OWNED AND MAINTAINED BY RIDGEMARK HOMES ASSOCIATION

WHEREAS: Ridgemark Homes Association is a nonprofit mutual benefit corporation organized under the Nonprofit Mutual Benefit Corporation Law.

WHEREAS: Ridgemark Homes Association (the Association) is the owner and charged with maintenance of common property including approximately 8.5 miles of roads that provide ingress and egress for the members and guests of Ridgemark Homes Association as well as the members and guests of several other home owner associations and Ridgemark Golf and Country Club, Inc. (RG&CC).

WHEREAS: Ridgemark Homes Association represents 662 members who own parcels within Ridgemark Estates.

WHEREAS: The original Developer of Ridgemark Estates agreed to spend $700,000 on required road improvements and did spend that amount in the years 2002 and 2003.

WHEREAS: The Members of Ridgemark Homes Association voted to acquire these roads from the original Developer and did take ownership on January 1, 2003. The Members also approved a special assessment of $800.00 per parcel and the expenditure of money from the regular annual assessment of approximately $130.00 per year for the maintenance and improvement of these roads. The Road Maintenance Committee of the Association has spent $825,000 for the period 2004 through 2008 in the maintenance and upgrading of the roads and they are currently in excellent condition.

WHEREAS: Ridgemark Homes Association recognizes the requirement placed on Sunnyslope County Water District Company (Sunnyslope) to provide for the disposal of recycled water and the potential for RG &CC and others to utilize this recycled water.

THEREFORE, BE IT RESOLVED, by the Ridgemark Homes Board of Directors:

The Board opposes the plan for the digging of a trench and laying pipe beneath current roads for the purpose of carrying recycled water to various mixing ponds located on RG&CC property. Such an action on these roads will do significant long term damage and will be unsightly.

Response G1: The Ridgemark Homes Board of Directors opinion regarding the proposed routes of recycled water lines and trenching is noted, but does not specifically address any inadequacies in the Draft EIR.

Comment G2: The Board of Directors requests that an alternate routing be developed for the trenching that would minimize the impact on Ridgemark Estate roads.

Response G2: In order to address concerns of the commenters, alternative routes for the recycled water pipelines that would avoid most roadway alignments have been identified. These routes are shown on Figure 21 in *Section 4.0*, below. It is important to note that these alternative routes were not developed to reduce any of the significant environmental impacts of the project.

Alternative routes could extend through the Ridgemark golf course, primarily along golf cart paths. Approximately 80 percent of the recycled water lines would be located within the golf course area, reducing the trenching required in local streets.

To complete the analysis of these alternative routes, the biological resources report has been revised (please see Appendix D of this document). The results of this analysis and a discussion of the impacts of this alternative has been completed. Please see "Section 6.4, Phase 1: Recycled Water Pipeline Alternative" of *Section 4.0,* following this section.

Comment G3: Be it Further Resolved, that the Draft Environmental Impact Report for the Ridgemark Wastewater Treatment and Recycled Water Improvements Project is inadequate in that it fails to assess the significant adverse environmental impacts of the project on the private roads owned by the Ridgemark Homeowners Association and the private property of the homeowners that will be taken or condemned by Sunnyslope in order to construct the project.

Response G3: The comment is noted, but does not specifically address any inadequacies in the Draft EIR. Although trenching of roadways would represent a short-term

change in the physical environment, this would not constitute a substantial *environmental* effect. Trenching to repair or replace utilities buried under streets is a common procedure in developed environments. Pavement, if properly replaced, would not be unsafe. The SSCWD proposes to repair any damage to streets, and will refill, recompact, and repave to the current level of quality. The aesthetic effects of discernable patching of pavement, while it could be annoying or may be considered unsightly by residents, would not substantially affect views or scenic quality. Roads in the residential area are generally level and/or are not highly visible from a distance.

The commenters express an opinion that the District would take or condemn their property during construction of the project, but does not explain why they believe this would occur. Installation of underground pipelines would not impair the ability of Ridgemark residences to use the street network in the long-term, once installation of pipelines is complete. Modification of pavement for trenching would not constitute a significant adverse environmental impact based upon the environmental checklist in the CEQA Guidelines or CEQA case law that the SSCWD is aware of.

H. RESPONSES TO COMMENTS FROM JOHN S. GREGG, RECEIVED APRIL 20, 2009.

Comment H1: The Draft EIR does not address a significant issue; the impact of wastewater disposal by percolation at the Ridgemark Estates Wastewater Treatment Plants on the water quality at Sunnyslope CWD drinking water wells and other drinking water wells in the area. The proposed project will continue disposal by percolation at Ridgemark Estates I.

From the groundwater modeling presented in the DEIR the area of impact from existing and future wastewater disposal can be seen to include numerous wells including existing and future SSCWD drinking water wells. The impact of wastewater on these wells can be assessed by relatively standard groundwater quality analysis methods as was done in the study of the area of impact of the City of Hollister Wastewater Plants. These analysis should be done and included in any consideration to continue wastewater disposal by percolation at Ridgemark Estates Wastewater Treatment Plant I (RM I).

The confidence and safety of your Ridgemark customers demands that you determine if SSCWD is practicing “toilet-to-tap” wastewater recycling in it current practices and/or its future plans.

The San Benito County Water District has already demonstrated that PPCPs (Pharmaceuticals and Personal Care Products) found in SSCWD RMI wastewater were also found in drinking water wells down gradient from RM I. A copy of a presentation of these results is enclosed.

This is a very serious matter which your EIR and your decision as a Board to certify an EIR and approve a project must address.

(The attachment to this letter is included in *Section 5*, below.)

Response H1: Please see Response E19, above.

I. RESPONSES TO VERBAL COMMENTS RECEIVED AT SUNNYSLOPE COUNTY WATER DISTRICT BOARD MEETING, APRIL 9, 2009.

Comment I1: Concerns were expressed about increased odor impacts from the project.

Response I1: Please see response D3. Mitigation measures are included in the project to reduce odor impacts, including preparation and implementation of an Odor Minimization Plan to avoid or minimize anaerobic conditions in sludge drying beds that could result in odors. The new equipment proposed for the project improvements is anticipated to generate fewer odor concerns than in the past, as the new processes would be more automatic and more reliable than current systems.

Comment I2: Concerns were expressed about increased noise impacts from the project.

Response I2: The proposed wastewater SBR equipment would largely "face" away from adjacent residential uses, and would be mostly enclosed in the proposed building. Mitigation measures included in the project require preparation of an acoustical study and adherence to noise standards for mechanical equipment to reduce possible noise impacts to nearby residents to a less than significant level.

J. RESPONSES TO VERBAL COMMENTS RECEIVED AT SUNNYSLOPE COUNTY WATER DISTRICT BOARD MEETING, APRIL 23, 2009.

Comment J1: Our primary concern is going down pavement in streets. $1.6 million was spent previously.

Response J1: Please see Response G2 above.

Comment J2: Not sure if the SSCWD has an easement.

Response J2: The SSCWD currently has utility easements in the Ridgemark streets proposed for the recycled water lines.

Comment J3: Ridgemark Country Club has vacant land and might be better put in golf course.

Response J3: Please see Response G2.

Comment J4: Impact on people and parcels.

Response J4: Please see Response G3.

Comment J5: Examine alternative routes by Golf Course.

Response J5: An alternative that would route approximately 80 percent of the recycled water line through the golf course has been added to the text of the EIR. This alternative can be considered for approval by the decision makers. Please see Responses G2 and G3.

Comment J6: Concerns about trench settlement.

Response J6: The commenter's concerns regarding trench settlement along the proposed recycled water line is noted. The proposed project would comply with the recommendations of the geotechnical engineering report, as contained in Appendix B of the Draft EIR, as well as the requirements of encroachment permits that would be issued by the County of San Benito.

SECTION 4.0 REVISIONS TO THE TEXT OF THE DRAFT EIR

The following section contains revisions to the *Ridgemark Wastewater Treatment and Recycled Water Improvements Project*, dated March 2009. Underlining depicts text added, while strikeouts depict text deleted.

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6.4 Phase 1 Improvements: Recycled Water Pipeline Route Alternative .....
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~~6.5~~ 6.6 Phase 2 Improvements: Design Alternatives For Concentrate Handling .....
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Page v: **REVISE *Table S-1,*** as shown.

Table S-1
Phasing for Ridgemark SSCWD Facilities in the HUAWWMP Area

Ridgemark Project Phase	Description[1]	Estimated Construction	Timeframe[2] in the HUAWWMP	Level of CEQA Review in this EIR	Future CEQA Review
1	***Wastewater Treatment and Recycled Water Improvements***				
1.a	**Improvements at RM I**	2009-2011	Near Term	Project	--
1.b	**Decommissioning of RM II Ponds**	2009-2011	Near Term	Project	--
1.c	**Recycled Water Treatment at RM I and Installation of Water Distribution Pipelines**	2009-2013	Near Term	Project	--
2	***Potable Water Improvements***				
2.a	**~~Ridgemark Pressure Zone Water Softening~~ Groundwater Treatment to Meet Near-Term Goals**	2011-2013	Near Term	Program[3]	Project
2.b	**~~Demineralization with Reverse Osmosis~~ Groundwater Treatment to Meet Long-Term Goals**	2014-2017	Near to Intermediate Term	Program[3]	Project
2.a & 2.b	**Water Softener Ordinance**	--	Near Term	Program	As Appropriate

Notes:
[1]Refer to *Section 1.3, Project Description* for a description of proposed project details and phasing
[2]HUAWWMP Phasing/Timeframes: Near Term (to 2015), Intermediate (to 2023), Long Term (after 2023)
[3]Subsequent project-level environmental review is required for these improvements and actions at the time specific projects (including location and project details) are known.

Page vi: **REVISE** the ***Summary***, as shown.

SIGNIFICANT ENVIRONMENTAL IMPACTS	***LEVEL OF SIGNIFICANCE BEFORE MITIGATION***	**MITIGATION AND AVOIDANCE MEASURES**	***LEVEL OF SIGNIFICANCE AFTER MITIGATION***
Land Use Impacts			
Impact LU-5: Implementation of the Phase 2 potable water project could result in significant impacts to agricultural resources, which would be inconsistent with County of San Benito policies designed to protect soil and agricultural resources.	**S**	***Phase 2 Program-Level Mitigation Measures*** Program-level mitigation measures in the *Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin* outline measures for avoiding impacts to Prime Farmland and Farmland of Statewide Importance, including not siting facilities for evaporation of concentrated from groundwater treatment on these lands. The project proposes to use site design to minimize impacts to Prime Farmland and productive agricultural areas; however, given the location and topography of the Ridgemark area and costs associated with pipelines to and from the SSCWD service area, Phase 2 improvements may be proposed on properties considered Prime Farmland based on soil characteristics. Implementation of the following mitigation measures would reduce potential agricultural resources impacts associated with construction of the future potable water/salinity management project, but may not reduce impacts to a less than significant level. (Note: The remainder of this section continues unchanged and the notation of a significant unavoidable impact is not a new impact not previously disclosed in the Draft EIR.)	**SU**
LTS = Less Than Significant	**S** = Significant		**SU** = Significant Unavoidable

Page vi: **REVISE** the ***Summary***, as shown.

MM LU-5.1: **Site Selection - Properties Under Williamson Act**
Properties committed to commercial agricultural uses under Williamson Act contract will not be considered as potential sites for potable water treatment ~~evaporation ponds or large scale sludge drying ponds~~. An exception may be made for a property where a notice of non-renewal has been filed.

Page vii: **REVISE** the ***Summary***, as shown.

MM LU-5.3: **Site/Project Design to Minimize Impacts to Prime Farmland and Farmland of Statewide Importance**
Site and project design will be used to minimize direct and indirect impacts to Prime Farmland and Farmland of Statewide Importance, to the extent feasible**.**

~~For Phase 2.a water softening facilities, measures such as sludge dewatering will be considered to minimize sludge volume and drying areas.~~

Page x/xi: **REVISE** the ***Summary***, as shown.

MM HYDRO 2.1: The following mitigation measures are included in the proposed project to ensure compliance with NPDES permit requirements enforced by the Regional Board to reduce construction water quality impacts:

- The SSCWD and/or its contractors shall prepare and implement an erosion control plan, a stormwater pollution prevention plan (SWPPP) and a stormwater management plan (SWMP) consistent with recommended design criteria, in accordance with the NPDES permitting requirements enforced by the Regional Board.

- The SWPPP shall prescribe construction-period BMPs to adequately contain sediment on-site and prevent construction activities from degrading surface runoff. BMPs shall be implemented in accordance with criteria in the California Stormwater BMP Handbook for Construction or other accepted guidance. The SWPPP shall be reviewed and approved by the County prior to issuance of grading permits.

- Contractors shall be required to implement Best Management Practices (BMPs) for construction activities. The BMPs include measures guiding the management and operation of construction sites to control and minimize the potential contribution of pollutants to storm runoff from these areas. These measures address procedures for controlling erosion

and sedimentation and managing all aspects of the construction process to ensure control of potential water pollution sources. Erosion and sedimentation control practices typically include:

- limiting construction to the dry-weather months;
- installation of silt fencing and/or straw wattle;
- soils stabilization;
- revegetation; and
- runoff control to limit increases in sediment in storm water runoff (e.g., straw bales, silt fences, check dams, geofabrics, drainage swales, and sand bag dikes).

- If it is not possible to limit construction to the dry-weather months, the project shall comply with San Benito County's winter grading measures. These measures shall apply during the rainy season (October 15 to April 15), and include:

  - Sufficient control materials shall be available, such as fiber rolls, straw bale dikes, plastic jute netting, etc.; These materials shall be kept on site at all times, to be installed immediately by the contractor upon the advent of any rainfall or wind that may be expected to cause accelerated erosion;
  - When rainfall or wind is predicted or occurring, temporary erosion control measures must be applied to all soils bared at the end of each day;

- The SSCWD shall identify the SWPPP Manager who will be the responsible party during the construction phase to ensure proper implementation, maintenance and performance of the BMPs.

Page xiii: **REVISE** the ***Summary***, as shown.

MM HYDRO-7.4: Filter Strip.

A minimum thirty-foot filter strip (buffer) between significant land disturbance and the highest anticipated water line (top of bank) in water courses shall be maintained whenever possible. Buildings will be located outside of the thirty-foot filter strip and construction activities should be located outside of the thirty-foot filter strip whenever possible.

Page xxvi: **REVISE** the ***Summary***, as shown.

Construction Impacts to California Tiger Salamanders and Their Habitat

California tiger salamanders could occur in aquatic habitats, and in grassland and oak woodland habitats near aquatic habitat (including vernal marshes) in San Benito County. Construction activities in these habitats could impact California tiger salamanders. The

following mitigation measures will reduce impacts to California tiger salamanders and their habitat to less-than-significant levels.

MM BIO-15.10: Determine Presence/Absence
Prior to construction, protocol-level surveys for California tiger salamanders (as determined in discussions with the U.S. Fish and Wildlife Service and the California Department of Fish and Game) will be conducted by a qualified biologist in any potential habitat for the species that could be affected by the Management Plan.

Page xxxii: **REVISE** the ***Summary***, as shown.

Construction Impacts to Wetland Habitats

MM BIO-15.27: Avoidance and Mitigation.
New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to wetland habitats. If total avoidance is not possible, then wetland replacement will be completed.

MM BIO-15.28: Wetland Replacement.
The wetland habitat that will be lost under any new projects would be functionally replaced in conformance with mitigation requirements of the responsible regulatory agencies. In-kind (the same wetland type) and on-site replacement of lost wetland habitats will be done where possible.

The determination of wetland impacts and the subsequent location and design of potential mitigation sites would be determined by qualified biologists in coordination with resource agency personnel. Mitigation and habitat restoration plans would provide for the following:

a. Calculation and replacement of lost acreage and functions of wetland habitat.

b. Location of restoration opportunities, complete with an analysis of the technical approach to create high quality wetlands.

c. Detailed plans will be prepared for wetland mitigation construction that includes excavation elevations, location of hydrologic connections, planting plans and soil amendments, if necessary. Maintenance and monitoring plans are to be prepared in consultation with a qualified habitat restoration specialist. Any mitigation wetlands will be monitored for a period of five years, during which the site will achieve the target jurisdictional acreage by Year 5. Specific performance criteria will be determined and monitored for site success.

Monitoring reports will be provided annually to the appropriate resource agencies.

d. *Permits.* Prior to construction of any project element that may impact wetland habitats, the project proponent will apply for a Section 404 permit and Water Quality Certification from the U.S. Army Corps of Engineers and the Regional Water Quality Control Board. The project proponent will comply with the conditions of required permits.

Page xxxiii: **REVISE *Mitigation Measure AQ-2.1***, as shown.

MM AIR-2-.1: An Operations and Maintenance Manual will be prepared as part of the project that will address proper operation and maintenance of all facilities. This manual will include procedures for proper maintenance and operation of the facilities to minimize odor. An Odor Minimization Plan will be prepared and included in this manual. The plan will specifies measures that will be taken to avoid the production of odors at the RM I facility and steps that will be taken if odor complaints are received. The purpose of the Odor Minimization Plan would be to avoid objectionable odors reaching off-site receptors. The plan would include both design features and operational measures to control odors at RM I. Both the Operations and Maintenance Manual and the Odor Minimization Plan will be completed prior to the start of operations of the improved wastewater treatment facility.

Design and operational measures included in the Operations and Maintenance Manual will include, at minimum:

- **Aeration of Solids Storage Tank.** The solids storage tank will be aerated to avoid the release of objectionable odors and will be maintained with a water cap to further contain potential odor generation. The Operations and Maintenance Manual will include specification of the frequency and timing of aeration of the solids storage tank.

- **Residence Time.** Solids sent to the drying beds will have undergone a 60 to 80 day solids residence time in the SBR and storage tank, resulting in a very stable sludge that will typically have a "musty" odor similar to that of composting organic material.

- **Distribution of Solids in the Drying Beds**. When solids are sent to the drying beds, relatively thin layers of sludge will be distributed to the drying beds, allowing water to be removed and evaporated from the drying areas relatively quickly, which will minimize the areas that stay wet for long periods of time.

- **Aeration and Turning of Solids in the Drying Beds.** As layers of solids build up in the drying beds, District staff will turn and aerate

the piles more frequently to ensure that all of the sludge is aerated and not under anaerobic conditions.

- **Protocol for Management of Odors.** The Operation and Maintenance Manual will include a set protocol for on-site management of potential odor problems. Odor suppression chemicals will be used, if needed.

- **Odor Complaints.** The District will designate a contact person who would be responsible for responding to any local complaints about odors from the RM I facility. The contact person will determine the cause of the odor complaint (e.g., anaerobic conditions in solids beds, etc.) and will require that reasonable measures to correct the problem condition be implemented. The telephone number for the contact person at the Sunnyslope County Water District (831-637-4670) will be conspicuously posted at the main pump station and gate of RM I and included in a notice sent to neighbors upon completion of construction of the RM I improvements. In addition, to comply with Monterey Bay Unified Air Pollution Control District Rule 402 (Nuisances), the phone number of the MBUAPCD shall be visibly posted to ensure compliance with this rule (831-647-9411).

Page xxxiv: **REVISE *Mitigation Measure AQ-4.1***, as shown.

MM AQ-4.1: Construction contractors shall implement a dust abatement program. All construction contracts will require the following:

- Watering shall be used to control dust generation during loading materials onto trucks.

- Cover all trucks hauling debris or soils from the site.

- Water all exposed soil surfaces at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.

- Cover all trucks hauling dirt, sand or loose materials, or maintain at least two feet of freeboard.

- Cover inactive storage piles.

- Sweep streets if visible soil material is carried out from the construction site.

- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to

ensure compliance with Rule 402 (Nuisance).

- Limit grading to 8.1 acres per day, and grading and excavation to 2.2 acres per day.
- Prohibit all grading activities during periods of high wind (over 15 mph)
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations, and hydro-seed area.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Install wheel washers at the entrance to construction sites for all exiting trucks.

Page xxxv: **REVISE *Mitigation Measures AQ-5.1 and -5.2***, as shown.

MM AQ-5.1: **Air Quality, Dust Control Program.** Prior to construction of evaporation ponds for ~~groundwater treatment concentrate~~ potable water treatment facilities, an effective dust control program will be developed. This program will be submitted to the MBUAPCD for review prior to implementation.

MM AQ-5.2: Future projects will prepare a dust abatement program for construction activities, as described in Mitigation Measure MM AQ-4.1, above. This program will be submitted to the MBUAPCD prior to implementation.

Page xli: **REVISE** the ***Summary of Alternatives***, as shown.

Cumulative Impacts			
SIGNIFICANT ENVIRONMENTAL IMPACTS	***LEVEL OF SIGNIFICANCE BEFORE MITIGATION***	**MITIGATION AND AVOIDANCE MEASURES**	***LEVEL OF SIGNIFICANCE AFTER MITIGATION***
Impact C-LU-2: The cumulative projects, including Phase 2 of the proposed project, would result in a cumulative loss of agricultural lands in San Benito County.	**S**	There is no established mitigation available that will avoid the impacts to agricultural land should the cumulative projects all be developed at the proposed locations. To provide replacement agricultural land, existing development would need to removed elsewhere in San Benito County and soil quality restored to a condition suitable for agricultural production. As described in *Section 3.1.3, Land Use Mitigation and Avoidance Measures*, the protection of other existing farmland, such as through the use of agricultural easements or outright purchase, would not be considered mitigation under CEQA because the net result of such actions would still be a net loss of farmland acreage. However, such actions do benefit agriculture by preventing the conversion of otherwise vulnerable farmland to non-agricultural uses. In San Benito County and elsewhere in the State of California, the total area of mapped farmlands has decreased as farmland is converted to urban uses. In some areas, grazing land or other lands are being brought into production; however, the net effect is a reduction in farmland, including Prime Farmland and Farmland of Statewide Importance. Given the constraints of converting existing developed areas to farmland, cumulative impacts to agricultural resources are considered significant and unavoidable.	**SU**
LTS = Less Than Significant	**S** = Significant	**SU** = Significant Unavoidable	

Page xliii: **REVISE** the ***Summary of Alternatives***, as shown.

The No Project alternative would not result in identified construction impacts under Phase 1 or II of the project, all of which would be less than significant with mitigation under the project proposed. The No Project would avoid significant, unavoidable Phase 2 project and cumulative impacts to Prime Farmland and agricultural resources, and would also avoid a significant growth-inducing impact. The No Project alternative, however, ~~may~~ will result in water quality impacts through continued discharge of wastewater out of compliance with updated standards. The No Project alternative would not fulfill any of the project's objectives regarding improved water and wastewater quality and capacity.

Page xliv: **INSERT** the following into the ***Summary of Alternatives***, as shown.

Phase 1 Improvements: Recycled Water Pipeline Route Alternative

The Recycled Water Pipeline Route Alternative describes recycled water pipeline alignments that would be primarily located within the Ridgemark Golf Course, rather than being located in private roads and streets. Additional biological mitigation measures would be required to avoid possible impacts to special status species during construction (installation of pipelines in golf course areas with burrows). This alternative would fulfill the project's objectives and goals. The Recycled Water Pipeline Route Alternative would have similar impacts to the proposed project, but is not environmentally superior.

Page xlvi: **REVISE** the ***Summary of Alternatives***, as shown.

Phase 2 Improvements: Design Alternatives for Concentrate Handling: Potable water treatment facilities ~~for water softening and demineralization~~ generate sludge or concentrate slurries as the hardness (primarily calcium and magnesium) and total dissolved solids are removed from treated groundwater. Water for the sludge (from water softening) or concentrate stream (from reverse osmosis demineralization) is generally evaporated further to reduce the weight or number of truck trips required to dispose of the material.

The concentrate generated ~~by a Reverse Osmosis (RO)~~ groundwater treatment process under Phase 2 can be reduced through either advanced concentration, land evaporation using ponds, or other technologies. Disposal alternatives include deep well injection, land filling of solids, or discharge to an ocean outfall. A preferred disposal option would likely be coupled with one or more concentrate reduction alternatives to reduce the volume of concentrate for disposal. Both advanced concentration of effluent and deep well injection are methods of handling and/or disposal that would avoid the construction of large evaporation ponds on Prime Farmland.

Page xlvii: **REVISE** the ***Summary of Alternatives***, as shown.

Known Areas of Controversy

There are no known areas of controversy regarding the proposed project.

The San Benito County Water District has noted that rate increases and the adoption of a water softener ordinance could become areas of controversy in the future.

Page 4, 6: **REVISE** the ***Section 1.3.1, Overview***, as shown.

1.3.1 Overview

The proposed project is implementation of a wastewater system improvement project to meet the long-term treatment and disposal needs of the Sunnyslope County Water District. The project would be implemented in two phases, with wastewater treatment facility upgrades to reduce the levels of ammonia, nitrates, BOD, TSS, and pH and a recycled water distribution system discussed in Phase 1 at a project-level in this EIR. Phase 2 includes potable water improvements to reduce salinity in wastewater effluent and is addressed at a program-level. Future project-level environmental review will be needed to construct all potable water improvements discussed at a program-level in this document. Based on year 2000 census data, the population served by the SSCWD wastewater treatment services was estimated at 3,000 persons. Population in the area with SSCWD-provided wastewater treatment is projected to increase by 1,929 to approximately 4,929 persons by 2025 (an increase of approximately 64 percent). The proposed modifications to the SSCWD system would allow for service to this projected 2025 population of 4,929, assuming a generation rate of 71 gallons per day per capita (Figure 4).[5]).[6] The ~~project site is~~ RM I facility and proposed recycled water lines are located within the Sunnyslope County Water District's (SSCWD) Sphere of Influence and Service Area boundaries for water services (refer to Figure 5).

The proposed improvements will serve an area that the District has long planned to provide service to. Most of the service area is within the Ridgemark development. There are also two parcels shown on Figure 4 that the SSCWD has a standing agreement to serve contingent on development approvals from the County of San Benito. The expansion of existing water and wastewater service areas is not proposed at this time or as a part of this project.

[5] Sunnyslope County Water District, *Final Basis of Design Report,* August 25, 2008.
[6] Sunnyslope County Water District, *Final Basis of Design Report,* August 25, 2008.

Page 5 **REVISE *Table 1.1-2***, as shown.

Table 1.1-2
Phasing for Ridgemark SSCWD Facilities in the HUAWWMP Area

Ridgemark Project Phase	Description[1]	Estimated Construction	Timeframe[2] in the HUAWWMP	Level of CEQA Review in this EIR	Future CEQA Review
1	***Wastewater Treatment and Recycled Water Improvements***				
1.a	**Improvements at RM I**	2009-2011	Near Term	Project	--
1.b	**Decommissioning of RM II Ponds**	2009-2011	Near Term	Project	--
1.c	**Recycled Water Treatment at RM I and Installation of Water Distribution Pipelines**	2009-2013	Near Term	Project	--
2	***Potable Water Improvements***				
2.a	**~~Ridgemark Pressure Zone Water Softening~~ Groundwater Treatment to Meet Near-Term Goals**	2011-2013	Near Term	Program[3]	Project
2.b	**~~Demineralization with Reverse Osmosis~~ Groundwater Treatment to Meet Long-Term Goals**	2014-2017	Near to Intermediate Term	Program[3]	Project
2.a & 2.b	**Water Softener Ordinance**	--	Near Term	Program	As Appropriate

Notes:
[1]Refer to *Section 1.3 Project Description* for a description of proposed project details and phasing
[2]HUAWWMP Phasing/Timeframes: Near Term (to 2015), Intermediate (to 2023), Long Term (after 2023)
[3]Subsequent project-level environmental review is required for these improvements and actions at the time specific projects (including location and project details) are known.

Page 13: **REVISE *Table 1.3-2***, as shown.

Table 1.3-2
Proposed Project Phasing

Phase 1 (2010-2012) Project-Level Analysis	**Phase 2 (2011-2040) Program-Level Analysis**
Wastewater Treatment Improvements	
Phase 1.a: • Installation and operation of a 0.35 MGD Sequencing batch reactor (SBR) facility at RM I • Pump station installation at RM II • Main lift station improvements • Construction of solids storage tank and solids drying beds **Phase 1.b:** • Decommissioning and clean-up of RM II • Rehabilitation of RM I Pond 1	
Recycled Water Project	
Phase 1.c: • Installation of Ridgemark area pipelines and blending station. • Installation of filters and disinfection at RM I (recycled water treatment) to facilitate recycled water use. • Recycled water use at the Ridgemark Golf Course.	**Phase 2.a: *** • Delivery of recycled water that meets wastewater requirements of the RWQCB. **Phase 2.b:*** • Delivery of recycled water that meets near term and intermediate salinity goals of the 2008 HUAWWMP, which are 500 to 700 mg/l TDS.
Salt Management Program	
Phase 1.c: • Blending of recycled water with CVP water and/or groundwater.	**Phase 2.a:*** • Potable water supply improvements: ~~water softening~~ groundwater treatment by District to meet near-term goals. **Phase 2.b:*** • Potable water supply improvements: ~~demineralization by the District~~. groundwater treatment to meet long-term goals. **Phases 2.a and 2.b:*** • Water Softener Ordinance

Notes: ***Project level environmental review will be required in the future for these components.

RWQCB WDRs Compliance: Completion of Phases 1.a, 1.b, and 2a. are required in to achieve RWQCB Waste Discharge Requirements compliance for the Ridgemark Wastewater Treatment Area.

Hollister Urban Area Water and Wastewater Management Plan (HUAWWP):
Completion of Phases 1.a, 1.b, 1.c and 1.a. correspond with *Near Term* facilities modifications and improvements under the November 2008 HUAWWP.

Completion of Phases 1.a, 1.b, 1.c, 2.a, 2.b and additional steps would correspond with *Intermediate* facilities modifications and improvements under the updated draft November 2008 HUAWWP.

Page 24: **REVISE *Section 1.3.2***, as shown.

1.3.2 Phase 2: Program-Level Salinity Management/Potable Water Supply Improvements

Implementation of potable water supply improvements will be discussed at a program-level in this EIR. This second phase of the project would reduce salinity in the wastewater effluent by decreasing the salinity of potable water used in the Sunnyslope County Water District's wastewater service area (specifically total dissolved solids (TDS), sodium, and chloride). These improvements could include demineralization and/or water softening of groundwater from wells, and would allow the ~~District~~ SSCWD to deliver recycled water with lower salinity for irrigation. The time frame for these improvements would be approximately 2011 to 2040, and subsequent environmental review will be required for construction and operation of the potable water supply project.

No specific site(s) have been selected for groundwater treatment. However, s~~S~~everal properties west of the Ridgemark development have been identified as possible sites for water treatment facilities. These sites are located in valley areas north of Hospital Road on both sides of the San Benito River. The 58-acre Campisi property is west of the San Benito River, between Hospital Road and Cienega Road. The 34-acre Bray property is located between the San Benito River and Southside Road, north of Hospital Road (Figure 3).

The EIR will provide an overview of the possible impacts associated with the potable water supply improvements component of the long-term wastewater treatment and recycled water improvement project, but will not include site-specific analysis.

Phase 2 of the project would be undertaken in two steps, as outlined below.

1.3.2.1 *Phase 2.a: Groundwater Treatment to Meet Near-Term Goals~~Water Softening~~*

The first step of Phase 2 improvements would include a new well, pump station and pipelines, storage, groundwater treatment~~water softening process, drying beds~~, and a water softener ordinance (Phase 2.a). There is no anticipated, preferred technology for Phase 2~~.a improvements is lime softening~~.

1.3.2.2 *Phase 2.b: Groundwater Treatment to Meet Long-Term Goals ~~Demineralization~~*

The second step in Phase 2 would include groundwater treatment ~~demineralization through reverse osmosis (RO), and blending of this RO water with groundwater~~ (Phase 2.b). The precise method to be used for disposal of concentrate produced from these processes is not currently known, ~~however the anticipated, preferred technology for Phase 2.b improvements is reverse osmosis, with brine concentration utilizing evaporation ponds.~~ Disposal methods for the resulting concentrate could include disposal at a land fill or at an ocean outfall.

Page 31: **INSERT** at the end of ***Section 1.5, Uses of the EIR***, as shown.

The following agencies may also use the EIR to aid their decision-making regarding aspects of the *Hollister Urban Area Water and Wastewater Management Plan* (HUAWWMP) Memorandum of Understanding:

- County of San Benito
- City of Hollister
- San Benito County Water District
- Sunnyslope County Water District

Decision-making on the HUAWWMP itself will be based upon an EIR being prepared for the HUAWWMP.

Page 31: **REVISE *Section 2.1.1.5, Groundwater Treatment and Concentrate Disposal [GWMP Section 5.5.5]***, as shown.

Element in the Proposed Project

Phase 2 of the proposed project includes groundwater treatment of potable water supplies. It is anticipated that this would be done in several steps~~; initially with a water softening facility and ultimately with a demineralization facility using reverse osmosis.~~ Drying beds and/or evaporation ponds ~~would~~ could be used to further ~~concentrate~~ the concentrate from the groundwater treatment facilities, as discussed in the GWMP. The concentrate then would be disposed of at a landfill or a coastal wastewater treatment plant outfall. Another option that SSCWD considered is deep well injection of concentrate into saline aquifers at depths of 1,500 feet or more. The exclusive use of deep injection wells could eliminate the need for the removal of both brine and solids generated from the brine, as the brine would be injected into existing deep aquifers. This method of concentrate disposal was mentioned as an additional option in the GWMP; however, it was not ~~considered a likely option and the environmental impacts of this method of disposal were not~~ evaluated in the 2004 GWMP Final EIR. Deep well injection is discussed as a Phase 2 potable water improvement alternative in this EIR.

Page 35/36: **REVISE *Section 2.2, Hollister Urban Area Water and Wastewater Plan***, as shown.

The November 2008 HUAWWMP updates the timing of the original goals of the MOU and discusses timing for specific projects for the various participating agencies. Near term goals for SSCWD in the HUAWWMP include building the Ridgemark Recycled Water Facilities contained in Phase 1.a, 1.b, and 1.c of the proposed project.[7] The HUAWWMP also sets near term goals for the SSCWD to build a ~~water softening~~ plant to treat groundwater for Ridgemark pressure zone as discussed in Phase 2.a of the proposed project (refer to Figure 5). Intermediate goals in the HUAWWMP identified for SSCWD include ~~building reserve osmosis~~ groundwater treatment facilities which will produce water of sufficiently high quality to meet the long term goals for water quality for both drinking water and recycled water. Under the proposed project, Phase 2.b potable water improvements will supply ~~reverse osmosis~~ additional treated groundwater ~~to the Ridgemark area~~.

Pages 33/34: **REVISE *Section 2.1.2, Relevant Objectives and Criteria in the GWMP***, as shown.

Consistency: The proposed project is generally consistent with Water Quality Objective 1 and Water Quality Criteria 1-1 through 1-3. Criterion 1-4 does not directly apply to the proposed project. The new wastewater treatment facilities will remove ammonia and nitrate from wastewater. The use of recycled water from the RM I facility would allow for a reduction of imported salts (by reducing water demand for CVP water supplies). A Water Softener Ordinance and potable water supply

[7] Source: Near term goals outlined on page ES-13 of the HUAWWMP (November 2008).

treatment under Phase 2 would improve the water quality of potable water supplied to M&I[8] customers and would reduce groundwater salinity associated with percolation of wastewater in the long-term. The salinity goal for blended recycled water under Phase 1 and (non-blended) recycled water under Phase 2 is 500-700 mg/l total dissolved solids (TDS). The salinity goal for blended recycled water under Phase 1 and (non-blended) recycled water under Phase 2 is 500-700 mg/l total dissolved solids (TDS). The salinity goal for recycled water under the project may not fully meet secondary water quality objectives for salinity, such as the DHS's Recommended Limit for Consumer Acceptance of 500 mg/L TDS.

Although use of the recycled water on crops is not currently proposed, the Phase 1 blended recycled water or Phase 2 recycled water applied to the golf course would generally meet the water quality parameters for agricultural water.

Pages 38/39: **REVISE *Section 2.2, Hollister Urban Area Water and Wastewater Plan***, as shown.

Consistency: The proposed Phase 1 improvements include installation and operation of a SBR unit to improve the quality of effluent from RM I to meet RWQCB discharge requirements for nitrate, ammonia, BOD, TSS, and pH. Filtration and disinfection in conformance with Title 22 regulations for recycled water use is also proposed to allow use of some of the effluent from the RM I for irrigation of the Ridgemark golf course. The wastewater facility layout at RM I allows for the addition of future treatment modifications to address future regulations.

Effluent from RM I would be disposed of by percolation and/or reuse recycled water use. Based upon a simulation of groundwater conditions, the projected percolation of effluent at RM I would not result in adverse impacts to drinking water supplies, raise groundwater levels substantially, or result in impacts to adjacent land uses (refer to *Section 3.3, Hydrology and Water Quality* in this EIR).

Phase 2 improvements, which are addressed at a program-level in this EIR, would result in reduced salinity (TDS, sodium and chloride) in wastewater effluent. Phase 2 improvements would result in wastewater effluent meeting RWQCB discharge requirements for these constituents. Continued percolation of wastewater effluent would not adversely impact drinking water supplies, raise groundwater levels substantially, or result in impacts to adjacent land uses based upon the analyses included in this EIR.

Phase 2 improvements could involve the use of evaporation ponds or drying ponds as part of the disposal process for concentrate from potable water treatment facilities. If these facilities are constructed on prime farmlands, this could result in impacts to agricultural resources, which would be inconsistent with the principles of the HUAWWMP. Facilities required in Phase 2 are addressed at a program level in this EIR and additional environmental review will be required when the location of these facilities are determined.

[8] M&I refers to "Municipal and Industrial" water users; in this case the primarily residential users within the Ridgemark Golf and Country Club development and future developments south of Airline Highway that are within the SSCWD service area.

Page 58: **REVISE *Section 3.1.2.4, Land Use Impacts from Phase 2 Improvements***, as shown.

Impacts to Agricultural Resources

Unlike the wastewater treatment upgrades discussed above, future potable water projects could be located within an agricultural area and result in direct or indirect impacts to agricultural resources or operations.

Phase 2 improvements may involve construction on undeveloped agricultural land or rangeland. In particular, drying beds or evaporation ponds for the handling of concentrate produced ~~from water softening or reverse osmosis~~ from groundwater treatment could require 30 to 40 acres or more of open, flat land**.** In the vicinity of the SSCWD Ridgemark facilities, "Prime Farmland" is present to the west and south (Figure 10). Properties currently being evaluated by the SSCWD as potential sites for potable water treatment facilities are mapped as Prime Farmland by the California Department of Conservation and are located on Grade I soils. One of the properties, the Campisi property, is not currently being cultivated and is bordered by residential uses on two sides. In areas that have not been irrigated or cropped in many years, development of evaporation ponds may not directly result in the conversion of active farmland to non-agricultural uses. The sites under consideration are not under Williamson Act contracts, although the Campisi property has an open space agricultural conservation easement established by a Planned Unit Development.[9]

Page 59: **REVISE *Section 3.1.3.1, Phase 2 Program-Level Mitigation Measures***, as shown.

MM LU-5.1: **Site Selection - Properties Under Williamson Act**
Properties committed to commercial agricultural uses under Williamson Act contract will not be considered as potential sites for potable water treatment ~~evaporation ponds or large scale sludge drying ponds~~. An exception may be made for a property where a notice of non-renewal has been filed.

Page 60: **REVISE *Section 3.1.3.1, Phase 2 Program-Level Mitigation Measures***, as shown.

MM LU-5.3: **Site/Project Design to Minimize Impacts to Prime Farmland and Farmland of Statewide Importance**
Site and project design will be used to minimize direct and indirect impacts to Prime Farmland and Farmland of Statewide Importance, to the extent feasible**.**

~~For Phase 2.a water softening facilities, measures such as sludge dewatering will be considered to minimize sludge volume and drying areas.~~

[9] The Williamson Act, or Land Conservation Act of 1965 authorizes counties to establish agricultural preserves by entering into contracts with landowners. Properties committed to agricultural or other compatible uses for a minimum of ten years receive property tax advantages. Withdrawal from a Williamson Act contract involves a ten-year period of tax adjustment to full market value before protected open space can be converted to urban uses.

Page 71: **REVISE *Section 3.3.1.1, Overview—Clean Water Act and Porter-Cologne Water Quality Control Act*,** as shown.

Wild and Scenic Rivers Act

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

The San Benito River is not classified as a wild, scenic, or recreational area under this act. The closest river to the project site that is identified by this program is the Big Sur River, more than 40 miles away.

Page 87: **INSERT *Section 3.3.2.7, Pharmaceuticals and Personal Care Products,*** as shown.

Pharmaceuticals and Personal Care Products as Pollutants (PPCPs)

Pharmaceuticals and Personal Care Products as Pollutants (PPCPs) refers, in general, to any product used by individuals for personal health or cosmetic reasons or used by agribusiness to enhance growth or health of livestock. PPCPs comprise thousands of chemical substances, including prescription and over-the-counter therapeutic drugs, veterinary drugs, fragrances, and cosmetics. PPCPs in the environment are frequently found in aquatic environments because PPCPs dissolve easily and don't evaporate at normal temperature and pressures.

To date, scientists have found no evidence of adverse human health effects from PPCPs in the environment.[10] Currently, no standards or thresholds of significance have been adopted for PPCPs by any of the governmental agencies with jurisdiction in the area.

Although PPCPs can occur anywhere drugs or personal care products are used, the SSCWD's water service area does not contain facilities such as hospitals, clinics, schools, large-scale agriculture, or industrial buildings which are known to be concentrated sources of PPCP contaminants.

Page 101: **REVISE *Section 3.3.4.1, Phase 1 Program-Level Mitigation Measures*,** as shown.

3.3.4.1 *Phase 1 Project-Level Mitigation Measures*

The following measures would reduce **Impact HYDRO-2,** *Impacts to Surface Water Quality* during construction to a less than significant level.

MM HYDRO 2.1: The following mitigation measures are included in the proposed project to ensure compliance with NPDES permit requirements enforced by the Regional Board to reduce construction water quality impacts:

[10] U.S. Environmental Protection Agency, *Pharmaceuticals and Personal Care Products (PPCPs),* http://www.epa.gov/ppcp/, accessed May 14, 2009.

- The SSCWD and/or its contractors shall prepare and implement an erosion control plan, a stormwater pollution prevention plan (SWPPP) and a stormwater management plan (SWMP) consistent with recommended design criteria, in accordance with the NPDES permitting requirements enforced by the Regional Board.

- The SWPPP shall prescribe construction-period BMPs to adequately contain sediment on-site and prevent construction activities from degrading surface runoff. BMPs shall be implemented in accordance with criteria in the California Stormwater BMP Handbook for Construction or other accepted guidance. The SWPPP shall be reviewed and approved by the County prior to issuance of grading permits.

- Contractors shall be required to implement Best Management Practices (BMPs) for construction activities. The BMPs include measures guiding the management and operation of construction sites to control and minimize the potential contribution of pollutants to storm runoff from these areas. These measures address procedures for controlling erosion and sedimentation and managing all aspects of the construction process to ensure control of potential water pollution sources. Erosion and sedimentation control practices typically include:

  - limiting construction to the dry-weather months;
  - installation of silt fencing and/or straw wattle;
  - soils stabilization;
  - revegetation; and
  - runoff control to limit increases in sediment in storm water runoff (e.g., straw bales, silt fences, check dams, geofabrics, drainage swales, and sand bag dikes).

- <u>If it is not possible to limit construction to the dry-weather months, the project shall comply with San Benito County's winter grading measures. These measures shall apply during the rainy season (October 15 to April 15), and include:</u>

  - <u>Sufficient control materials shall be available, such as fiber rolls, straw bale dikes, plastic jute netting, etc.; These materials shall be kept on site at all times, to be installed immediately by the contractor upon the advent of any rainfall or wind that may be expected to cause accelerated erosion;</u>
  - <u>When rainfall or wind is predicted or occurring, temporary erosion control measures must be applied to all soils bared at the end of each day;</u>

- The SSCWD shall identify the SWPPP Manager who will be

the responsible party during the construction phase to ensure proper implementation, maintenance and performance of the BMPs.

Page 103: **REVISE *Section 3.3.4.2, Phase 2 Program-Level Mitigation Measures***, as shown.

MM HYDRO-7.4: Filter Strip.

A minimum thirty-foot filter strip (buffer) between significant land disturbance and the highest anticipated water line (top of bank) in water courses shall be maintained whenever possible. Buildings will be located outside of the thirty-foot filter strip and construction activities should be located outside of the thirty-foot filter strip whenever possible.

Page 105: **REVISE *Section 3.4, Biological Resources***, as shown.

3.4 BIOLOGICAL RESOURCES

The following discussion is based on the "Ridgemark Wastewater Treatment and Recycled Water Improvement Project (Sunnyslope County Water District) – Biotic Evaluation in Support of CEQA Plus, Hollister, California," prepared by *Live Oak Associates, Inc.*, in ~~October 2008~~ June 2009. This report is attached to this EIR as Appendix D.

Page 112: **REVISE *Section 3.4.2.4, Special-Status Species Meriting Further Discussion***, as shown.

California Tiger Salamander

The California tiger salamander (CTS) (*Ambystoma californiense)* is listed as federally-threatened and a ~~state Species of Special Concern~~ California Candidate for Listing (Endangered). The California tiger salamander is a large terrestrial salamander, with adults attaining a total length of over eight inches. Adult California tiger salamanders breed from late November through February, following the onset of winter rains. Both males and females travel up to one mile or more during nocturnal breeding migrations from subterranean refuge sites (i.e., small mammal burrows) to egg deposition sites in long-lasting, rain-filled vernal pools.

Page 134: **REVISE *Section 3.4.5.2, Phase 2 Program-Level Mitigation Measures***, as shown.

Construction Impacts to California Tiger Salamanders and Their Habitat

California tiger salamanders could occur in aquatic habitats, and in grassland and oak woodland habitats near aquatic habitat (including vernal marshes) in San Benito County. Construction activities in these habitats could impact California tiger salamanders. The following mitigation measures will reduce impacts to California tiger salamanders and their habitat to less-than-significant levels.

MM BIO-15.10: Determine Presence/Absence

Prior to construction, protocol-level surveys for California tiger salamanders (as determined in discussions with the U.S. Fish and Wildlife Service and the California Department of Fish and Game)

will be conducted by a qualified biologist in any potential habitat for the species that could be affected by the Management Plan.

Page 138: **REVISE *Section 3.4.5.2, Phase 2 Program-Level Mitigation Measures***, as shown.

Construction Impacts to Wetland Habitats

MM BIO-15.27: Avoidance and Mitigation.
New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to wetland habitats. If total avoidance is not possible, then wetland replacement will be completed.

MM BIO-15.28: Wetland Replacement.
The wetland habitat that will be lost under any new projects would be functionally replaced in conformance with mitigation requirements of the responsible regulatory agencies. In-kind (the same wetland type) and on-site replacement of lost wetland habitats will be done where possible.

The determination of wetland impacts and the subsequent location and design of potential mitigation sites would be determined by qualified biologists in coordination with resource agency personnel. Mitigation and habitat restoration plans would provide for the following:

a. Calculation and replacement of lost acreage and functions of wetland habitat.

b. Location of restoration opportunities, complete with an analysis of the technical approach to create high quality wetlands.

c. Detailed plans will be prepared for wetland mitigation construction that includes excavation elevations, location of hydrologic connections, planting plans and soil amendments, if necessary. Maintenance and monitoring plans are to be prepared in consultation with a qualified habitat restoration specialist. Any mitigation wetlands will be monitored for a period of five years, during which the site will achieve the target jurisdictional acreage by Year 5. Specific performance criteria will be determined and monitored for site success. Monitoring reports will be provided annually to the appropriate resource agencies.

d. *Permits.* Prior to construction of any project element that may impact wetland habitats, the project proponent will apply for a Section 404 permit and Water Quality Certification from the U.S. Army Corps of Engineers and the Regional Water

Quality Control Board. The project proponent will comply with the conditions of required permits.

Page 152: **REVISE *Section 3.7.1.1, Federal General Conformity Rule for the Federal Clean Air Act*,** as shown.

For projects seeking State Revolving Fund loans from the State Water Resources Control Board, a Clean Air Act general conformity analysis would be required for projects in a nonattainment area or an attainment area subject to a maintenance plan and is required for each criteria pollutant for which an area has been designated nonattainment or maintenance. If a project's emissions are below the "de minimis" level and are less than 10 percent of the area's inventory specified for each criteria pollutant in a nonattainment or maintenance area, further general conformity analysis is not required. A conformity determination must be made if emissions from project facilities are above "de minimis" thresholds established for the area. A conformity determination can be made if facilities are sized to meet only the needs of current population projections that are used in the approved SIP for air quality.

The project area is within a federal ~~maintenance~~ attainment area for the federal one-hour ozone standard.

Page 155: **REVISE *Section 3.7.2.4, Attainment Status and Regional Air Quality Plans*,** as shown.

The MBUAPCD shares responsibility with CARB for ensuring that the state and national ambient air quality standards are met within the North Central Coast Air Basin. State law assigns local air districts the primary responsibility for control of air pollution from stationary sources while reserving to CARB control of mobile sources. The MBUAPCD is responsible for developing regulations governing emissions of air pollution, permitting and inspecting stationary sources, monitoring air quality and air quality planning activities.

~~Under the Federal Clean Air Act the NCCAB is designated as a maintenance area for the federal one-hour ozone standard.~~ The NCCAB was re-designated from a moderate nonattainment area to a maintenance area in 1997 after meeting the federal one-hour standard in 1990. Upon revocation of the federal one-hour ozone standard on June 15, 2005, the NCCAB became designated as an attainment area for all federal standards, including the federal one-hour and eight-hour ozone standards. ~~The NCCAB is designated as unclassified/attainment for the federal eight-hour ozone standard.~~ Under the California Clean Air Act (CCAA), the basin is a moderate non-attainment area for the state one-hour ozone standard. The air basin is also designated non-attainment for the state PM_{10} standard.

Page 157: **REVISE *Section 3.7.3.1, Federal Clean Air Act, Thresholds of Significance*,** as shown.

Federal Clean Air Act
Thresholds of Significance

The proposed project will seek funding through the State Revolving Loan Fund administered by the State Water Resources Control Board. Since this program is partially funded by the U. S. Environmental Protection Agency, the project would be subject to the conformity requirements of the Clean Air Act Amendments. The conformity provisions of the Act are designed to ensure that

federal agencies contribute to, instead of jeopardizing, efforts to achieve the National Ambient Air Quality Standards (NAAQS).

The General Conformity rules require conformity determinations for projects if they generate more emissions than minimum thresholds and are not specifically exempted by the regulation. The North Central Coast Air Basin is currently a federal ~~maintenance~~ attainment area for the federal one-hour ozone standard, and the General Conformity rules establish the following "de minimis" thresholds:

- 100 tons per year for VOCs
- 100 tons per year for NO_x

These "de minimus" thresholds apply to both construction and operation of a project.

Page 162/163: **REVISE *Section 3.7.3.1, Phase 1 Project-Level Mitigation Measures,*** as shown.

MM AIR-2-1: An Operations and Maintenance Manual will be prepared as part of the project that will address proper operation and maintenance of all facilities. This manual will include procedures for proper maintenance and operation of the facilities to minimize odor. An Odor Minimization Plan will be prepared and included in this manual. The plan will specifies measures that will be taken to avoid the production of odors at the RM I facility and steps that will be taken if odor complaints are received. The purpose of the Odor Minimization Plan would be to avoid objectionable odors reaching off-site receptors. The plan would include both design features and operational measures to control odors at RM I. Both the Operations and Maintenance Manual and the Odor Minimization Plan will be completed prior to the start of operations of the improved wastewater treatment facility.

Design and operational measures included in the Operations and Maintenance Manual will include, at minimum:

- **Aeration of Solids Storage Tank.** The solids storage tank will be aerated to avoid the release of objectionable odors and will be maintained with a water cap to further contain potential odor generation. The Operations and Maintenance Manual will include specification of the frequency and timing of aeration of the solids storage tank.

- **Residence Time.** Solids sent to the drying beds will have undergone a 60 to 80 day solids residence time in the SBR and storage tank, resulting in a very stable sludge that will typically have a "musty" odor similar to that of composting organic material.

- **Distribution of Solids in the Drying Beds**. When solids are sent to the drying beds, relatively thin layers of sludge will be distributed to the drying beds, allowing water to be removed and evaporated from the drying areas relatively quickly,

which will minimize the areas that stay wet for long periods of time.

- **Aeration and Turning of Solids in the Drying Beds.** As layers of solids build up in the drying beds, District staff will turn and aerate the piles more frequently to ensure that all of the sludge is aerated and not under anaerobic conditions.

- **Protocol for Management of Odors.** The Operation and Maintenance Manual will include a set protocol for on-site management of potential odor problems. Odor suppression chemicals will be used, if needed.

- **Odor Complaints.** The District will designate a contact person who would be responsible for responding to any local complaints about odors from the RM I facility. The contact person will determine the cause of the odor complaint (e.g., anaerobic conditions in solids beds, etc.) and will require that reasonable measures to correct the problem condition be implemented. The telephone number for the contact person at the Sunnyslope County Water District (831-637-4670) will be conspicuously posted at the main pump station and gate of RM I and included in a notice sent to neighbors upon completion of construction of the RM I improvements. In addition, to comply with Monterey Bay Unified Air Pollution Control District Rule 402 (Nuisances), the phone number of the MBUAPCD shall be visibly posted to ensure compliance with this rule (831-647-9411).

Page 163: **REVISE *Section 3.7.3.1, Phase 1 Project-Level Mitigation Measures*,** as shown.

MM AQ-4.1: Construction contractors shall implement a dust abatement program. All construction contracts will require the following:

- Watering shall be used to control dust generation during loading materials onto trucks.

- Cover all trucks hauling debris or soils from the site.

- Water all exposed soil surfaces at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.

- Cover all trucks hauling dirt, sand or loose materials, or maintain at least two feet of freeboard.

- Cover inactive storage piles.

- Sweep streets if visible soil material is carried out from the

construction site.

- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (Nuisance).

- Limit grading to 8.1 acres per day, and grading and excavation to 2.2 acres per day.

- Prohibit all grading activities during periods of high wind (over 15 mph)

- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)

- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations, and hydro-seed area.

- Plant vegetative ground cover in disturbed areas as soon as possible.

- Install wheel washers at the entrance to construction sites for all exiting trucks.

Page 164: **REVISE *Section 3.7.3.2, Phase 2 Program-Level Mitigation Measures,*** as shown.

MM AQ-5.1: **Air Quality, Dust Control Program.** Prior to construction of evaporation ponds for ~~groundwater treatment concentrate~~ potable water treatment facilities, an effective dust control program will be developed. This program will be submitted to the MBUAPCD for review prior to implementation.

MM AQ-5.2: Future projects will prepare a dust abatement program for construction activities, as described in Mitigation Measure MM AQ-4.1, above. This program will be submitted to the MBUAPCD prior to implementation.

MM AQ-5.3: Future projects will conform to all MBUAPCD requirements for the permitting of backup generators.

Page 202: **REVISE *Section 4.2.3.6 Impacts of Induced Growth (Hydrology and Water Quality)***, as shown.

4.2.3.6 *Hydrology and Water Quality*

Potable water for new residences would be supplied by the SSCWD using groundwater and possibly CVP water. The impacts of softening and demineralizing potable water are addressed in this EIR. Based upon the simulation completed as a part of this EIR, projected future growth would not adversely impact groundwater supplies, groundwater levels, or groundwater quality. The adequacy of water supplies for future development projects may need to be assessed in accordance with CEQA and provisions of the State Water Code (also referred to as Senate Bill 610) at the time they are proposed.

Induced residential development could result in increased runoff and surface water quality impacts from additional impervious surfaces associated with development, including building roofs and paved areas.

The County of San Benito General Plan and zoning regulations require project-specific environmental review and measures to avoid or reduce significant impacts to the environment. The NPDES General Construction program also requires implementation of measures to reduce nonpoint source pollution during and after construction of projects over one acre in size. The conformance of future development projects to County General Plan policies and existing regulations, including the State Water Code, could avoid or reduce significant water quality impacts associated with new growth.

Page 213: **REVISE *Section 5.2.2.2, Cumulative Groundwater Hydrology and Water Quality***, as shown.

Changes in Groundwater Levels

The existing groundwater table is approximately 200 feet below the ground surface. Contours of the projected cumulative change in groundwater levels relative to existing conditions are shown in Figure 18 for both a dry year and a wet year.

The effects of pumping on groundwater levels tend to spread fairly rapidly over a wide area and the effects of the project and SSCWD activities overlap those of the City of Hollister and other uses. Overall, broad regional groundwater level declines within the Ridgemark development of three to six feet are projected due to increased pumping of municipal groundwater by the City of Hollister and the SSCWD. The project's contribution to changes in groundwater levels is shown on Figure 13. Anticipated future groundwater use and percolation under the proposed project would result in a zero to three foot decrease in groundwater levels in the Ridgemark area.

As previously discussed, the water table is currently approximately 200 feet below the ground surface and the lowering of water levels by three to six feet under cumulative conditions would not adversely impact the operation or yield of nearby wells. Even during droughts, simulated water levels under the proposed project were equal to or higher than historical water levels that occurred as recently as the early 1990s (prior to importation of CVP water). Most existing wells are designed to function properly with groundwater at historically low water levels. Individual development projects may require an assessment of available water supply before approval, in accordance with recent State Water Code. The projected cumulative change in water levels would not represent a substantial

decrease in groundwater levels or substantial depletion of groundwater supplies.

Page 224: **REVISE *Section 5.3.4.2, Impacts from the Project (Changes in Emissions of Greenhouse Gases),*** as shown.

Phase 2 Construction and Operational Emissions

Development of a potable water treatment site could require more construction time than Phase 1 improvements, primarily for the installation of pipelines and evaporation ponds. For example, a~~A~~ lime softening facility would take 12 to 18 months to complete, and a demineralization facility would take an additional 12 to 18 months to construct.

Page 224: **REVISE *Section 6.2.1, No Project Alternative -- Conclusion,*** as shown.

The No Project alternative would not result in significant (but mitigated) construction impacts or significant unavoidable impacts to Prime Farmland and agricultural resources. The No Project alternative, however, ~~may~~ will result in water quality impacts through continued discharge of wastewater out of compliance with updated standards. The No Project alternative would not fulfill any of the project's objectives regarding improved water and wastewater quality and capacity.

Pages 230-241: **REVISE** numbering for Section 6-4 through 6.8, as shown below,

6.4 Phase 1 Improvements: Recycled Water Pipeline Route Alternative
6.4.1 Conclusion

~~6.4~~ 6.5 Phase 2 Improvements: Alternative Locations
6.~~4~~5-1 Location Alternative I: Santana Ranch
6.~~4~~5-2 Location Alternative II: Lima Property
6.~~4~~5-3 Location Alternative III: GraniteRock Quarry

~~6.5~~ 6.6 Phase 2 Improvements: Design Alternatives For Concentrate Handling
6.~~5~~6-1 Advanced Concentration and Disposal
6.~~5~~6-2 Deep Well Injection

~~6.6~~ 6.7 Other Alternatives Considered But Rejected
6. ~~6~~7-1 Other Location Alternatives Considered for Phase 2 Improvements (35-50+ Acre Site)
6.~~6~~7-2 Design Alternatives for Phase 1 Improvements
6.~~6~~7-3 Regional Wastewater System Alternative for Phase 1 Improvements

~~6.7~~ 6.8 Environmentally Superior Alternative
6. ~~7~~8-1 Environmentally Superior Alternative – Phase 1 Improvements
6. ~~7~~8-2 Environmentally Superior Alternative – Phase 2 Improvements

Table 6.~~6~~7-1: Other Alternative Sites Considered for Phase 2 Improvements (35-50+ Acre Site) But Rejected

Table 6.~~7~~8-1: Comparisons of Project Alternatives, Phase 1 Improvements

Table 6.~~7~~8-2: Comparisons of Project Alternatives, Phase 2 Improvements

Page 230: **INSERT** in ***Section 6.0, Alternatives*** the following text, as shown.

6.4 PHASE 1 IMPROVEMENTS: RECYCLED WATER PIPELINE ROUTE ALTERNATIVE

This alternative describes recycled water pipeline alignments that would be primarily located within the Ridgemark Golf Course, rather than being located in paved private roads and streets (refer to Figure 21). Recycled water lines as described in the proposed project would be located approximately 80 percent in roads and streets, and this alternative would locate the pipelines approximately 80 percent within the golf course area. This design alternative was prepared in response to comments made on the Draft EIR, but is not designed to reduce any of the identified environmental impacts of the proposed project.

As described in the revised Appendix D, *Biological Resources*, this alternative would disturb a greater amount of upland habitat than the proposed project pipeline alignment. During a field survey completed for the revised biological assessment, a number of active pocket-gopher burrows were located within the alternative alignment, which could be used by special-status species during dormancy periods (including California tiger salamander, western spadefoot, and red-legged frog), if these animals were able to reach the area.

Based on the presence of these burrows, an additional biological mitigation and avoidance measure would be required if this alternative is implemented (see page 43, Appendix D). Since the existing burrows could provide habitat for special-status species, pre-construction surveys for these amphibians would be conducted prior to installation of pipelines in the golf course area. This modified mitigation and avoidance measure would not be required for pipeline installation in private streets in the Ridgemark area.

Apart from potential impacts to special-status species from this pipeline alternative route during construction (which therefore would require additional mitigation and avoidance measures to be implemented), this alternative would result in similar impacts to the proposed project, and would not further reduce any of the identified significant impacts. The Recycled Water Pipeline Route Alternative would fulfill the project's objectives in a similar manner as the project.

6.4.1 Conclusion

The Recycled Water Pipeline Route Alternative describes recycled water pipeline alignments that would be primarily located within the Ridgemark Golf Course, rather than being located in private roads and streets. Additional biological mitigation measures would be required to avoid possible impacts to special status species during construction (installation of pipelines in golf course areas with burrows). This alternative would fulfill the project's objectives and goals. The Recycled Water Pipeline Route Alternative would have similar impacts to the proposed project, but is not environmentally superior.

Page 236: **REVISE *Section 6.5, Phase 2 Improvements: Design Alternatives for Concentrate Handling,*** as shown.

6.~~5~~6 PHASE 2 IMPROVEMENTS: DESIGN ALTERNATIVES FOR CONCENTRATE HANDLING

Potable water treatment facilities ~~for water softening and demineralization~~ generate sludge or concentrate slurries as the hardness (primarily calcium and magnesium) and total dissolved solids are removed from treated groundwater. Water for the sludge (from water softening) or concentrate stream (from reverse osmosis demineralization) is generally evaporated further to reduce the weight or number of truck trips required to dispose of the material.

The concentrate generated by ~~a Reverse Osmosis (RO)~~ groundwater treatment process<u>es</u> under Phase 2 can be reduced through either advanced concentration, land evaporation using ponds, or other technologies. Disposal alternatives include deep well injection, land filling of solids, or discharge to an ocean outfall. A preferred disposal option would likely be coupled with one or more concentrate reduction alternatives to reduce the volume of concentrate for disposal.

Page 237: **REVISE *Section 6.5.2, Deep Well Injection***, as shown.

6.~~5~~6.2.1 *Conclusion*

Deep well injection could be used as an alternate process for concentrating effluent to avoid construction of evaporation ponds. However, it is likely that some evaporation ponds would still be required for backup of the injection system. Deep well injection would therefore avoid some of the impacts to Prime Farmland, but would not necessarily avoid these impacts entirely. There is no assurance that a suitable saline aquifer will be found near the District. Given the high cost of well development for deep well injection systems and the size of the District (less than 5,000 residents south of Airline Highway), this alternative ~~would~~ <u>may</u> not meet the District's objectives regarding costs to ratepayers.

Page 238: **REVISE *Table 6.6-1*,** as shown.

Table 6.~~6~~7-1
Other Alternative Sites Considered
for Phase 2 Improvements (35-50+ Acre Site) But Rejected

Site #	Area/Location	Owner/Site/ Project Name	APNs	Acres	Other Constraints/ Reason Rejected
1	South of Airline Highway, North of Union Road	Vicinity of Riverside Road, north of Nash Road	210600290 210600260 210600270 210500070 210600280	21.0	Not entirely flat. The site is ~~too~~ small, even if parcels are combined.
2	South of Airline Highway, North of Union Road	Vicinity of Riverside Road, north of Nash Road	210800470 210800320 210800330	9.5	Partially Prime Farmland, far west from Ridgemark facilities, partially residential. Total site ~~too~~ is small, even if parcels are combined.
3	North of Airline Highway, West of Fairview Road	Award Homes	577100020 577100050 577100060 577100070 251900420 253200150 253200130	Approx. 295	Approved for residential development.
4	South of Airline Highway, South of Union Road	County Quarry	203200310	32.6	Part of larger parcel--less than 10 acres are quarry uses. Possibly large enough to accommodate some, but not all ~~lime~~ treatment or evaporation ponds.
5	South of Airline Highway, South of Union Road	North of Pond 6	211400410 211400280 202800410 202800130 202900280	73.01	Site parcels are designated Farmland of Local Importance and are in the middle of sites designated Prime Farmland and Residential. Only small area out of flood zone (10-15%).
6	South of Airline Highway, South of Union Road, North of Ridgemark.	Lico	202900290	52.7	Partially Farmland of Local Importance. Not entirely flat, bordered by residential development.
7	East of Fairview Road and North of Airline Highway	Gavilan Site	251900490	37.3	~~Not large enough; s~~Sloping, approved for community college uses.
8	South of Airline Highway, South of Union Road	West of San Benito River, west of Cienega Road	211100430 211100440 211100500 211100370 211100530 211100550 211100560 211100570 211100540 211700090 211700110 211700120	68.8	Multiple rural residential five-acre lots, difficult to assemble 10-12 lots with existing rural residential uses, (beyond SSCWD facilities).

Table 6.6~~7~~-1 Other Alternative Sites Considered for Phase 2 Improvements (35-50+ Acre Site) But Rejected					
Site #	**Area/Location**	**Owner/Site/ Project Name**	**APNs**	**Acres**	**Other Constraints/ Reason Rejected**
9	South of Airline Highway.	Ridgemark II Facility	206500180	7.74	~~Too s~~mall, unless used for ~~lime~~ limited groundwater~~-~~treatment only.
10	North of Airline Highway, East of Ridgemark	Nino	25200001	106.8	35-40% Farmland of Statewide Importance, sloping.

Page 239: **REVISE *Section 6.6*,** as shown.

6.6~~7~~ OTHER ALTERNATIVES CONSIDERED BUT REJECTED

6.6~~7~~.1 Other Location Alternatives Considered for Phase 2 Improvements (35-50+ Acre Site)

A search was completed for location alternative sites that fit the criteria described in *Section 6.4*, above, using the San Benito County geographical information system database, California Department of Conservation maps, applicable topographic maps and aerial photographs, and other available information. The primary purpose of a location alternative search was to identify sites where the proposed potable water project could be built that would avoid significant unavoidable impacts to Prime Farmland.

A number of locations in the project area were considered but rejected as alternative sites for the potable water project. In most cases, these sites were generally too small (less than 50 acres), had uneven surfaces (hilly or with drainages), were partially developed with rural residential uses, or had portions of the sites designated as Prime Farmland or under Williamson Act contract. In some cases, a number of contiguous parcels were considered, but rejected due to the logistical difficulty of combining the parcels. Several sites were sufficiently large to be used for ~~a portion of the potable water project~~ some types of potable water treatment (lime softening), but not large enough for evaporation ponds. These sites are described in Table 6.6-1, and indicated on Figure 20 by the site number.

Although these sites currently are not considered feasible due to size, availability, or other criteria, use of a combination of smaller sites may be possible in the future due to improved technology, advances in potable water facility design, or reduced energy requirements for advanced concentration treatment.

Page 239: **INSERT *Section 6.7.3, Phase 1 Improvements: Regional Wastewater System Alternative,*** under *Alternatives Considered, But Rejected,* as shown.

6.7.3 Location Alternative for Phase 1 Improvements – Hollister Regional Wastewater Treatment Facility

An alternative to the proposed Phase 1 improvements to the wastewater treatment facilities at the Ridgemark site would be connection to the City of Hollister Regional Wastewater Treatment facility. An evaluation and description of this alternative was included in the SSCWD's *Long-Term Wastewater Management Plan* (LTWMP) (January 2006) as "Alternative 4.3: Regional Wastewater Treatment and Disposal Alternative." This alternative would include the cessation of local treatment of wastewater and, instead, construction of pipelines to pump raw wastewater to the Hollister Domestic Wastewater Treatment Plant (DWTP) for subsequent treatment and disposal.

This alternative would include the construction of approximately 7,000 feet of new pipelines and other facilities, including a pump station and wet well, with connections to the existing City of Hollister collection system and ultimately the Hollister Domestic Wastewater Plant (DWTP). The precise layout of these pipelines and where they would be located has not been determined. Wastewater produced by the SSCWD would be disposed of at the existing Hollister DWTP's percolation ponds, or in future irrigation or other recycled water uses. If recycled water is to be used at the Ridgemark golf course, several miles of additional pipelines from the DTWP, located north of Hollister, or the closest regional recycled water line would be required.

In 2006, the capital and annual costs for implementing this alternative were estimated at $12.1 million and 1.27 million, respectively. An alternative for a local treatment system and recycled water lines similar to the proposed project had lower costs ($9.8 million capital costs and $0.9 million annual costs). While this alternative would meet the primary objective of meeting updated RWQCB standards for four chemical constituents in wastewater effluent, the capital costs identified in the SSCWD's *Long-Term Wastewater Management Plan* (LTWMP) may not fulfill the project's objective of providing a cost-effective wastewater treatment and disposal solution to District customers.

This alternative may have greater construction impacts (i.e., cultural resources, biological resources, air quality, and water quality) than the proposed project, based on the longer length of the pipelines required. Construction impacts associated with the pipelines also could be greater than the proposed project due to possible crossings of creeks or other sensitive habitats. This alternative would reduce or avoid significant construction noise, air quality, water quality, and biological resources impacts in the Ridgemark area, as well as possible odor or operational noise impacts during operation of RM I. All of these impacts can be reduced to a less than significant level with measures included in the proposed project, however. Connection to the City of Hollister wastewater treatment facility would have the same, significant unavoidable growth-inducing impacts of the project resulting from serving projected growth in the area through 2025. Other operational impacts for the DWTP project considered by the environmental review prepared for the DWTP, including noise and hazardous materials, would occur under this alternative. New sewer lines that extend over a long distance of level ground and a wet well could result in operational impacts, such as hydrogen sulfide odors at manholes, that could require mitigation. Under this alternative, potable water improvements (Phase 2) would remain the responsibility of the SSCWD and would be similar to the proposed project.

This alternative would avoid possible construction and operational impacts in the Ridgemark area, however since this alternative would have the same growth-inducing impacts as the proposed project

and would have increased construction impacts from pipeline construction, connection of the residential and commercial users in the Ridgemark area to the Hollister wastewater treatment facility instead of constructing Phase 1 improvements at RM I would not be clearly environmentally superior to the proposed project. For this reason, this alternative is not considered further.

Page 240: **REVISE *Table 6.7-1, Comparison of Project Alternatives, Phase 1 Improvements*,** as shown.

Table 6.~~7~~8.1
Comparison of Project Alternatives
Phase 1 Improvements

Impact	Proposed Project	No Project Alternative	No Growth Alternative	Alternative Pipeline Route
HYDRO-2: Construction Runoff	SM	**NI**	SM	SM
BIO-3: CTS, CRLF, Spadefoot	SM	**NI**	SM	SM
BIO-4: Western Pond Turtle	SM	**NI**	SM	SM
BIO-5: Burrowing Owl	SM	**NI**	SM	SM
BIO-6: SJ Kit Foxes	SM	**NI**	SM	SM
BIO-7: American Badger	SM	**NI**	SM	SM
BIO-8: Nesting Raptors	SM	**NI**	SM	SM
BIO-9: Nesting Waterfowl	SM	**NI**	SM	SM
AQ-2: Objectionable Odors	SM	**NI**	SM	SM
AQ-4: Construction Air Quality	SM	**NI**	SM	SM
NOISE-2: Construction Noise	SM	**NI**	SM	SM
CR-1: Archaeological Resources	SM	**NI**	SM	SM
Growth-inducing Impact	SU	**NI**	**LTS**	SU
Overall Environmentally Superior Alternative	--	--	**X**	--
Meets Phase 1 project objective to:				
1) Comply with wastewater discharge order?	YES	NO	YES	YES
3) Install infrastructure for recycled water production and distribution?	YES	NO	YES	YES
4) Provide wastewater facilities with capacity for growth through 2025?	YES	NO	NO	YES
5) Implement improvements that are cost effective and affordable?	YES	NO	YES	YES

SM: Significant, but can be mitigated to a Less Than Significant Level
SU: Significant, Unavoidable Impact **NI:** No Impact **LTS**: Less Than Significant Impact
Bold text indicates "environmentally superior to the proposed project."

Page 246: **REVISE *Section 9.0, References***, as shown.

Defend the Bay v. City of Irvine (2004) 119 CA4th 1261, 1275, 15 CR3d 176.

Kostka, Stephen L. and Michael H. Zischke, *Practice Under the California Environmental Quality Act*, Second Edition, February 2009 (Update).

Live Oak Associates, *Ridgemark Wastewater Treatment and Recycled Water Improvement Project (Sunnyslope County Water District) – Biotic Evaluation in Support of CEQA Plus, Hollister, California*, ~~October 2008~~ June 2009.

Page 248: **REVISE *Section 9.0, References***, as shown.

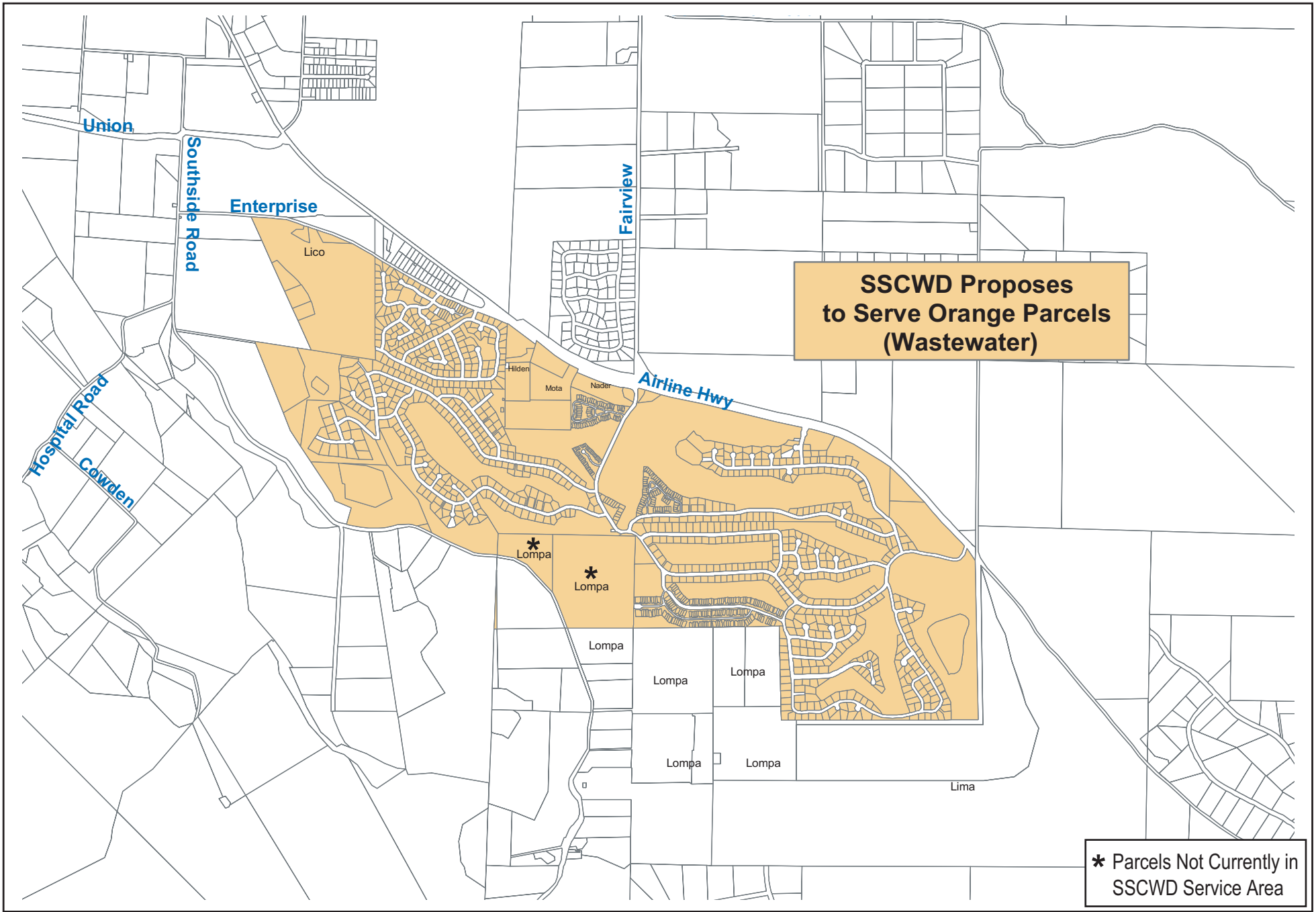
U.S. Environmental Protection Agency, *Pharmaceuticals and Personal Care Products (PPCPs)*, http://www.epa.gov/ppcp/, accessed May 14, 2009.

U.S. Fish and Wildlife Service, National Wild and Scenic Rivers, http://www.rivers.gov/, accessed May 15, 2009.

U.S. Geological Survey, *Emerging Contaminants in the Environment*, http://toxics.usgs.gov/regional/emc/index.html, accessed June 29, 2009.

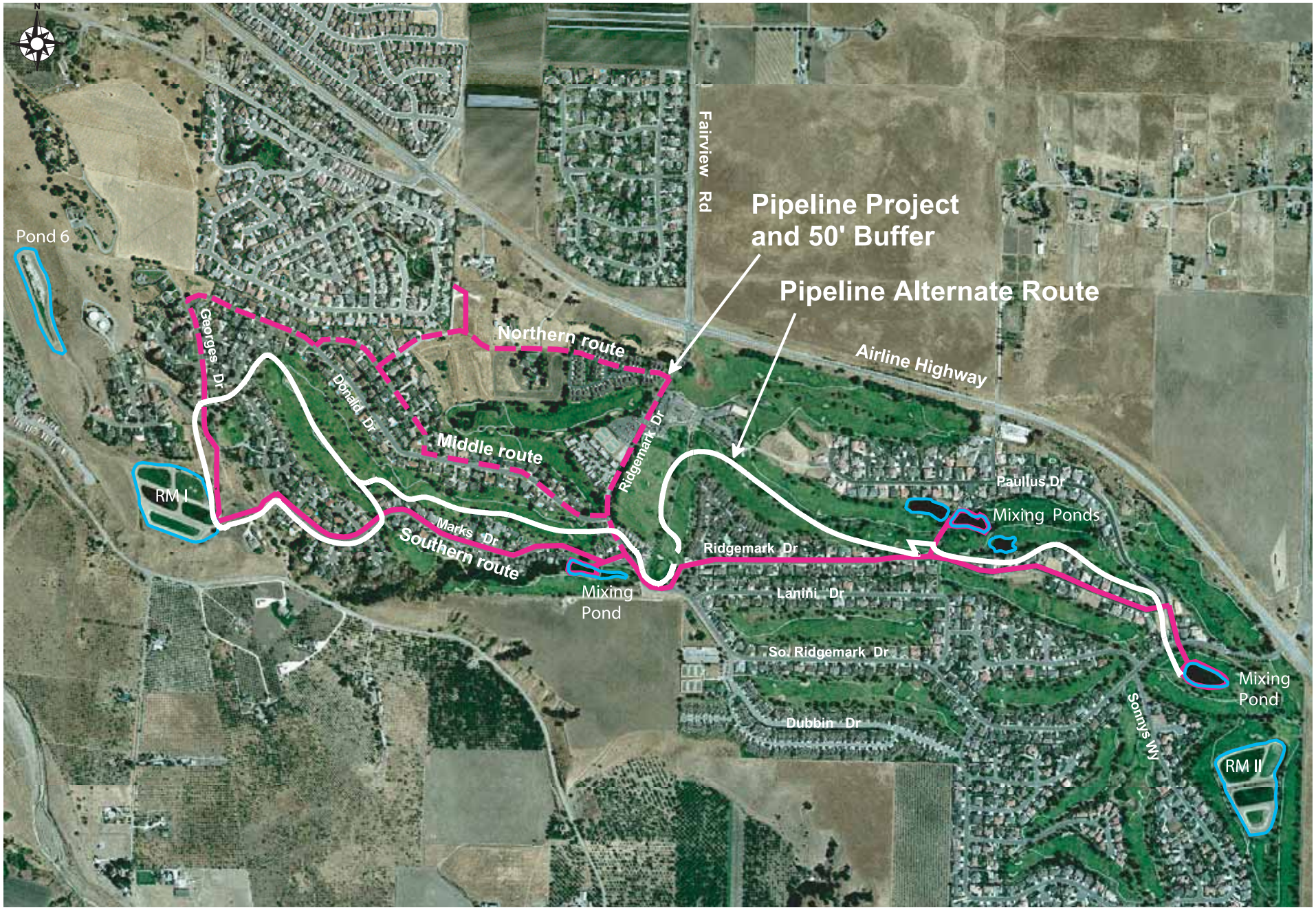
REVISE *Appendix E, Page 6*, as shown.

~~Under the Federal Clean Air Act the NCCAB is designated as a maintenance area for the federal 1-hour ozone standard.~~ The NCCAB was re-designated from a moderate nonattainment area to a maintenance area in 1997 after meeting the federal 1-hour standard in 1990. Upon revocation of the federal one-hour ozone standard on June 15, 2005, the NCCAB became designated as an attainment area for all federal standards, including the federal one-hour and eight-hour ozone standards. ~~The NCCAB is designated as unclassified/attainment for the federal 8-hour ozone standard.~~ Under the California Clean Air Act (CCAA), the basin is a moderate non-attainment area for the state 1-hour ozone standard. The air basin is also designated non-attainment for the state PM_{10} standard.



SSCWD WASTEWATER SERVICE AREA

FIGURE 4 (REVISED)



ALTERNATIVE PIPELINE ROUTES

FIGURE 21

SECTION 5.0 COPIES OF COMMENT LETTERS

The original comment letters on the *Ridgemark Wastewater Treatment and Recycled Water Improvements Project* are provided on the following pages.

State Water Resources Control Board

Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.waterboards.ca.gov

Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

APR 8 2009

Mr. Bryan Yamaoka
Sunnyslope County Water District
3570 Airline Highway
Hollister, CA 95023

Dear Mr. Yamaoka:

ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE SUNNYSLOPE COUNTY WATER DISTRICT (DISTRICT); RIDGEMARK WASTEWATER TREATMENT AND RECYCLED WATER IMPROVEMENTS PROJECT (PROJECT); CLEAN WATER STATE REVOLVING FUND (CWSRF) NO. C-06-5160-110; STATE CLEARINGHOUSE (SCH NO. 2008071031)

We understand the District is pursuing CWSRF financing for the proposed Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information on the EIR prepared for the Project.

Please provide us with the following documents applicable to the proposed Project: (1) Two copies of the Draft and Final EIR, (2) the resolution certifying the EIR, adopting the Mitigation Monitoring and Reporting Program and making California Environmental Quality Act (CEQA) findings, (3) all comments received during the review period and the District response to those comments, (4) the adopted Mitigation Monitoring and Reporting Program, and (5) the Notice of Determination filed with the Governor's Office of Planning and Research. In addition, we would appreciate notice of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board.

The CWSRF Program is partially funded by the U.S. Environmental Protection Agency and requires additional "CEQA-Plus" environmental documentation and review. Three enclosures are included that further explain the environmental review process and some additional federal requirements in the CWSRF program. In addition, an environmental form is included for the District to submit should it pursue State Water Board funding. The State Water Board can consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF funding commitment for the proposed Project. For further information on the CWSRF program, please contact Ms. Michelle L. Jones at (916) 341-6983.

It is important to note that prior to a CWSRF funding commitment, projects are subject to provisions of the Federal Endangered Species Act and must obtain approval from the U.S. Fish and Wildlife Service (USFWS), and/or National Marine Fisheries Service (NMFS) for any potential effects to special status species. Please be advised that the State Water Board can consult with USFWS, and/or NMFS on behalf of the District regarding all federal special status species the Project has the potential to impact if the Project is to be funded under the CWSRF Program. The District will need to identify whether the Project will involve any direct effects from construction activities, or indirect effects, such as growth inducement, that may affect federally-listed threatened, endangered, or candidate species that are known, or have a potential to occur on-site, in the surrounding areas, or in the service area. Please identify applicable conservation measures to reduce such effects.

In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act. The State Water Board has responsibility for ensuring compliance with Section 106 and the State Water Board's Cultural Resources Officer (CRO) consults directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant for projects having potential impact to cultural resources. Please contact the CRO, Ms. Cookie Hirn, at (916) 341-5690, to find out more about the requirements, and to initiate the Section 106 process, as applicable, if the District decides to pursue CWSRF financing.

Other federal requirements pertinent to the Project under the CWSRF program include the following:

A. Compliance with the Migratory Bird Treaty Act: List any birds that are protected under this Act that may be impacted by the Project, and identify conservation measures to minimize such impacts.

B. Protection of Wetlands: Identify whether or not the Project or construction activities will impacts stream, flood control channels, or wetlands.

C. Compliance with the Wild and Scenic Rivers Act: Identify whether or not the Project will impact any Wild or Scenic Rivers.

The following are my specific comments regarding the EIR:

1. On page vi of the Draft EIR, impacts to Prime Farmland, land of Statewide Importance, and land under the Williamson Act Contract are identified. Please indicate these as significant and unavoidable impacts to Agricultural Resources, and add a section to identify mitigation measures to partially compensate for these unavoidable losses. In addition, add these unavoidable impacts to the Statement of Overriding Considerations (SOC).

2. Page 60 states "If a project that results in the loss of farmland contributes to the protection of other farmland where that threat or likelihood of conversion to non-agricultural use is imminent, that fact can be taken into account when a Lead Agency adopts a statement of overriding consideration." CEQA Guidelines Article 7, Section 15093 states "CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable environmental risks when determining whether to approve the project." If the specific economic, legal, social, technological, or other benefits of the proposed project outweigh the unavoidable adverse effects, the adverse environmental impacts to land use (i.e., conversion of Prime Farm Land) for Phase 2, the District will need to adequately support its decision to continue with the Project in light of the adverse effect. For more information on the SOC please refer to CEQA Guidelines Article 7, Section 15093 (a), (b), and (c).

Thank you once again for the opportunity to review the District's environmental document. If you have any questions regarding my comments, please feel free to contact me at (916) 341-5686, or by email at jhockenberry@waterboards.ca.gov.

Sincerely,

James Hockenberry
Environmental Scientist

Enclosures (4)

cc: State Clearinghouse w/o enclosures
(Re: SCH# 2008071031)
P. O. Box 3044
Sacramento, CA 95812-3044

STATE WATER RESOURCES CONTROL BOARD

CEQA AND STATE WATER BOARD GRANTS

Environmental Requirements for State Water Board Grants

The State Water Resources Control Board (State Water Board) distributes funding through various grants, including Propositions 13, 40, 50, Water Recycling, Small Community Grants and others. Applicants seeking funds are required to comply with the California Environmental Quality Act (CEQA), and provide documents for the State Water Board's environmental review process.

GRANT FUNDING

State Water Board grants are subject to CEQA. The State Revolving Fund Loan program has additional federal requirements described in the *SRF & CEQA-Plus* pamphlet.

LEAD AGENCY

The applicant is usually the Lead Agency and must prepare and circulate an environmental document before approving a project. Only a public agency, such as a local, regional or state government, may be the Lead Agency under CEQA. If a project will be completed by a non-governmental organization, Lead Agency responsibility goes to the first public agency providing discretionary approval for the project.

RESPONSIBLE AGENCY

The State Water Board is a Responsible Agency and must review and consider the environmental document prior to providing funding to any portion of a project.

As the Responsible Agency, the State Water Board must make findings based on information provided by the Lead Agency before granting "environmental clearance" for the project. The Lead Agency must adhere to the CEQA process and provide detailed information about any potential adverse or beneficial environmental impacts resulting from the project.

STATE WATER BOARD RESPONSIBILITIES

The State Water Board's mission is to preserve, enhance and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations. To fulfill this responsibility, and to carry out obligations as a Responsible Agency under CEQA, the State Water Board must consider the Lead Agency's environmental document before providing funding.

ENVIRONMENTAL CLEARANCE

Environmental clearance must be done before a project can be funded. For Small Community Wastewater grants and Water Recycling Funding Program grants, environmental clearance must be received before a Facilities Plan Approval is issued by the State Water Board for a project.

DOCUMENT REVIEW

The State Water Board would like to review documents as early in the process as possible. Send environmental documents to the State Water Board, Regional Programs Unit during the CEQA public review period. Be sure to identify yourself as a grant applicant. This way, any environmental concerns the State Water Board has about the project can be addressed early in the process.

REQUIRED DOCUMENTS

The Regional Programs Unit must have the documents listed below to provide environmental clearance.

1. Draft and Final Environmental Documents – Environmental Impact Reports, Negative Declarations, CEQA exemptions;

2. Resolution approving the project, adopting the environmental document and making CEQA findings;

3. All comments received during the public review period and your responses to those comments;

4. Adopted Mitigation Monitoring Plan, if applicable; and

5. Notice of Determination filed with the Governor's Office of Planning and Research.

Once the State Water Board has received all documents, considered them and found them adequate, environmental clearance for the funding can be granted.

CONTACT INFORMATION

For more information, please contact the Division of Financial Assistance, Loans and Grants at (916) 341-5700.

California Water Boards

State Water Resources Control Board
Regional Water Quality Control Boards

November 2005

State Water Resources Control Board (State Water Board)
Clean Water State Revolving Fund Program

Evaluation Form for Environmental Review and Federal Coordination

1. **Federal Endangered Species Act, Section 7:**
Does the project involve any direct effects from construction activities, or indirect effects such as growth inducement that may affect federally listed threatened or endangered species that are known, or have a potential, to occur on-site, in the surrounding area, or in the service area?

☐ No. Discuss why the project will not impact any federally listed special status species:

_____
_____
_____
_____
_____
_____

☐ Yes. Include information on federally listed species that could potentially be affected by this project and any proposed avoidance and compensation measures so that the State Water Board can initiate informal/formal consultation with the applicable federally designated agency. Document any previous ESA consultations that may have occurred with the project.

Attach project-level biological surveys, evaluations analyzing the project's direct and indirect effects on special-status species, and a current species list for the project area.

2. **National Historic Preservation Act, Section 106:**
Identify the Area of Potential Effects (APE), including construction, staging areas, and depth of any excavation. (Note that the APE is three dimensional and includes all areas that may be affected by the project, including the surface area and extending below ground to the depth of any project excavations.)

_____
_____
_____
_____
_____
_____
_____
_____

Attach a current records search with maps showing all sites and surveys drawn in relation to the project area, and records of Native American consultation.

3. **<u>Clean Air Act:</u> Is the project subject to a State Implementation Plan (SIP) conformity determination?**

☐ No. The project is in an attainment or unclassified area.

☐ Yes. The project is in a nonattainment area or attainment area subject to maintenance plans. Include information to indicate the nonattainment designation (e.g. moderate, serious or severe), if applicable. If estimated emissions (below) are above the federal de minimis levels, but the project is sized to meet only the needs of current population projections that are used in the approved SIP for air quality, then quantitatively indicate how the proposed capacity increase was calculated using population projections.

Air Basin Name: _____

Provide the estimated project construction and operational air emissions (in tons per year) in the chart below.

Attach any air quality studies that may have been done for the project.

Pollutant	Status (Attainment, Nonattainment or Unclassified)	Threshold of Significance for the Area (if applicable)	Construction Emissions (Tons/Year)	Operation Emissions (Tons/Year)
Carbon Monoxide (CO)				
Ozone (O_3)				
Oxides of Nitrogen (NO_x)				
Particulate Matter (PM_{10})				
Reactive Organic Gases (ROG)				
Sulfur Dioxide (SO_2)				
Volatile Organic Compounds (VOC)				

4. **<u>Coastal Zone Management Act:</u>**
Is any portion of the project site located within the coastal zone?

☐ No. The project is not within the coastal zone.

☐ Yes. Describe the project location with respect to coastal areas, and the status of the coastal zone permit:

_____
_____
_____
_____
_____
_____

5. **Farmland Protection Policy Act:**
Is any portion of the project site located on important farmland?

☐ No. The project will not impact farmland.

☐ Yes. Include information on the acreage that would be converted from important farmland to other uses. Indicate if any portion of the project site is located within Williamson Act control and the amount of affected acreage:

6. **Flood Plain Management – Executive Order Number 11988:**
Is any portion of the project site located within a 100-year floodplain as depicted on a floodplain map or otherwise designated by the Federal Emergency Management Agency?

☐ No. Provide a description of the project location with respect to streams and potential floodplains:

☐ Yes. Describe the floodplain, and include a floodplain map and a floodplains/wetlands assessment. Describe any measures and/or project design modifications that would minimize or avoid flood damage by the project:

7. **Migratory Bird Treaty Act:**
Will the project affect protected migratory birds that are known, or have a potential, to occur on-site, in the surrounding area, or in the service area?

☐ No.

☐ Yes. Discuss the impacts (such as noise and vibration impacts, modification of habitat) to migratory birds that may be directly or indirectly affected by the project and mitigation measures to reduce or eliminate these impacts. Include a list of all migratory birds that could occur where the project is located:

8. **Protection of Wetlands – Executive Order Number 11990:**
Does any portion of the project area contain areas that should be evaluated for wetland delineation or require a permit from the U.S. Army Corps of Engineers?

☐ No. Provide the basis for such a determination:

_____
_____
_____

☐ Yes. Describe the impacts to wetlands, potential wetland areas, and other surface waters, and the avoidance, minimization, and mitigation measures to reduce such impacts. Provide the status of the permit and information on permit requirements:

_____
_____
_____
_____
_____
_____

9. **Wild and Scenic Rivers Act:**
Is any portion of the project located within a wild and scenic river?

☐ No. The project will not impact a wild and scenic river.

☐ Yes. Identify the wild and scenic river watershed and project location relative to the affected wild and scenic river:

_____
_____
_____
_____
_____
_____

Identify watershed where the project is located:_____

10. **Source Water Protection:**
Is the project located in an area designated by the U.S. Environmental Protection Agency, Region 9, as a Sole Source Aquifer? (For more information, please visit http://www.epa.gov/region09/water/groundwater/ssa.html.)

☐ No. The project is not within the boundaries of a sole source aquifer.

☐ Yes. Identify the aquifer (e.g., Santa Margarita Aquifer, Scott's Valley, the Fresno County Aquifer, the Campo/Cottonwood Creek Aquifer or the Ocotillo-Coyote Wells Aquifer):

_____

If project emissions are **below the "de minimis" levels** and less than 10% of the emissions inventory for the non-attainment or maintenance area, then:

- **Further general conformity analysis is not required.**

If project emissions are **above the "de minimis" levels**:

- **A conformity determination for the area must be made.**

A conformity determination can be made if facilities are sized to meet the needs of current population projections used in an **approved** State Implementation Plan (SIP) for air quality. Using population projections, applicants must **quantify** their description of how the proposed capacity increase was calculated.

NATIONAL HISTORIC PRESERVATION ACT

Section 106 of the NHPA requires federal agencies to take into account effects on historic properties caused by federal actions (such as funding SRF projects) and to provide the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings through consultation with the State Historic Preservation Officer (SHPO) and with interested Indian Tribes and individuals.

***USEPA has delegated to the State Water Board the responsibility for carrying out the requirements of Section 106 of the NHPA.**

Historic properties include:

- Archaeological sites.
- Historic era buildings.
- Traditional cultural properties.

Starting point for the 106 process:
Applicant's record search and cultural resource documents prepared for CEQA.

State Water Board's Cultural Resource Officer (CRO) requires:

- Copies of all original maps and studies for consultation with SHPO.

If your project has the potential to affect historic properties the consultation process can be quite lengthy. **Please contact the CRO early in your planning process to discuss what additional information may be needed for your specific project.**

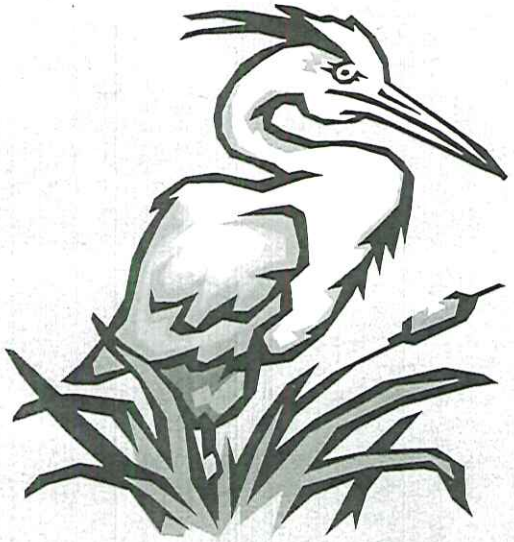
Environmental Review Process Guidelines for State Revolving Fund Loan Applicants document provides additional information on the review process and can be found on the State Water Board's web site located at:

http://www.waterboards.ca.gov/funding/srf.html

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

SRF & CEQA-PLUS

Environmental Review for State Revolving Fund (SRF) Loan Applicants



- WHAT - WHY - HOW -

State Water Resources Control Board
Division of Financial Assistance
November 2005

WHAT IS CEQA-PLUS?

The SRF Loan Program is partially funded by the U.S. Environmental Protection Agency (USEPA) and subject to federal environmental regulations, including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA), among others. Federal agencies have their own policies on how they comply with federal environmental laws. Instead of the National Environmental Policy Act (NEPA), USEPA has chosen to use the California Environmental Quality Act (CEQA) as the compliance base for California's SRF Loan Program, in addition to compliance with ESA, NHPA and CAA. Collectively, the State Water Board calls these requirements **CEQA-Plus.** Additional federal regulations also may apply.

Lead Agency: The Applicant

Duties:

- Prepare, circulate and consider the environmental documents prior to approving the project.
- Provide the State Water Board with eight (8) copies of the applicant's CEQA documents.

Responsible Agency: State Water Board, Division of Financial Assistance

Duties:

- Acting on behalf of USEPA, review and consider the CEQA documents before approving the project's funding.
- Make findings as to the adequacy of the documents and require additional studies or documentation, as needed.
- Distribute the applicant's CEQA documents to selected federal agencies for review and comment before making a determination on adequacy. (This distribution is in addition to the standard State Clearinghouse distribution under CEQA.)

***The applicant must address all comments by federal agencies before funding is approved.**

ENDANGERED SPECIES ACT

Non-federal Representative (for all wastewater and water reclamation projects in California that involve an SRF loan): **State Water Board**

State Water Board - Environmental Services Staff (ES) reviews SRF projects to determine potential effects on federally listed species.

Applicant Duties:

- At the earliest possible date, provide ES with:
  - **Species lists.**
  - **Biological assessments.**
  - **Other documents related to project effects on sensitive species.**
- Notify ES **early** during the planning process of any issues regarding sensitive species.

ES Duties:

- Confer informally with the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS), as necessary.
- Evaluate and inform USFWS/NMFS of project impacts to federally listed species.
- Ask USEPA to request formal consultation if ES, in conjunction with USFWS/NMFS, determines that a project will adversely affect a federally listed species.

***USEPA will act as the lead agency in the formal consultation process. In response to a formal request from USEPA, USFWS/NMFS may have up to 90 days to prepare a biological opinion. The process can last 135 days or longer.**

CLEAN AIR ACT

CAA general conformity analysis applies only to projects in areas:

- Not meeting National Ambient Air Quality Standards (NAAQS).
- Subject to a maintenance plan.

An analysis is necessary for each **criteria pollutant below** for which an area is considered as being in nonattainment or maintenance:

- **ozone**
- **carbon monoxide**
- **nitrogen dioxide**
- **sulfur dioxide**
- **lead**
- **inhalable particulate matter**

Cultural Resources

Compliance with Federal Section 106 of the National Historic Preservation Act

Information Needed from the Applicant:

- Current records search with maps showing all sites and surveys drawn in relation to the project area.
- Native American consultation.
- Instructions as to how to get started are found in the CEQA Guidelines, since these two items are basic to any cultural resources review.

Migratory Bird Treaty Act

Information Needed From the Applicant:

- Identification of whether or not the project is within jurisdiction of the Migratory Bird Treaty Act.

Wild and Scenic Rivers Act

Information Needed from the Applicant:

- Identification of whether or not the project will impact any Wild and Scenic Rivers.

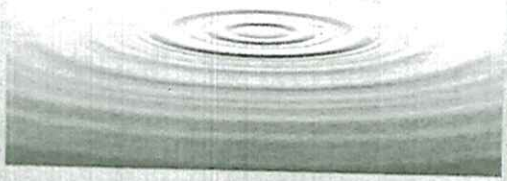
Other Requirements

Information Needed from the Applicant:

- Eight (8) copies of the final CEQA document.
- A date-stamped copy of the Notice of Determination or the Notice of Exemption filed with the Governor's Office of Planning and Research and a receipt of the filling fees paid to the California Department of Fish and Game for Negative Declarations (ND) or Environmental Impact Reports (EIR).
- A copy of the Resolution from the lead agency, approving or certifying the CEQA document and their project. *Note: The CEQA Guidelines uses "approve" or "adopt" for ND and "certify" for EIR.*

Quick Reference Guide to the California Environmental Quality Act (CEQA)-Plus Requirements for State Revolving Fund Loans

Guide to Federal Requirements



State Water Resources Control Board
Division of Financial Assistance
January 2008

Endangered Species

Compliance with Section 7 of the Endangered Species Act

Information Needed from the Applicant:

- List of special status species (both animal and plant) likely or possibly to occur at project site. *Note: If none will possibly occur, provide supporting information.*
- Any biological assessments or special biological studies that may have been done for the project.
- Other documents that disclose information about the project's effect on sensitive species.

Protection of Wetlands

Information Needed from the Applicant:

- Identification of whether or not the project or construction activities will impact streams, flood control channels, or wetlands.

Air Quality

Compliance with the Federal Air Quality Act

Information Needed from the Applicant:

- Air quality studies that may have been done for the project.
- For those projects in non-attainment areas or attainment areas subject to maintenance plans:
  - → Emission data for each criteria pollutant for which the area has been designated non-attainment or maintenance; and
  - → Summary of the emissions that are expected from both the construction and operation of the project for each criteria pollutant in a non-attainment or maintenance area.
- If emissions are above the federal de minimis levels, but the project is sized to meet only the needs of current population projections that are used in the approved State Implementation Plan for air quality:
  - → Quantitatively indicate how the proposed capacity increase was calculated using population projections.

Floodplain Management

Information Needed from the Applicant:

- Identification of whether or not the project is in a Flood Management Zone and a copy of the Federal Emergency Management Agency flood zone maps for the project area.

Farmland Protection Policy Act

Information Needed from the Applicant:

- Identification of whether or not the proposed project will impact any important farmland or land under Williamson Act control.

Coastal Zone Management Act

Information Needed from the Applicant:

- Identification of whether or not the proposed project is in the Coastal Zone.

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

April 21, 2009

Bryan Yamaoka
Sunnyslope County Water District
3570 Airline Highway
Hollister, CA 95023

Subject: Ridgemark Wastewater Treatment and Recycled Water Improvements Project
SCH#: 2008071031

Dear Bryan Yamaoka:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on April 20, 2009, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2008071031
Project Title Ridgemark Wastewater Treatment and Recycled Water Improvements Project
Lead Agency Sunnyslope County Water District

Type EIR Draft EIR

Description The proposed project is the implementation of a wastewater system improvement project to meet the long-term treatment and disposal needs of the Sunnyslope County Water District. Under the proposed project, flows from two existing wastewater treatmetn plants (RM 1 and RM II) would be combined and the treatment facilities upgraded to accommodate the combined flow and to meet regulatory wastewater treatment requirements. Most of the work would be within the existing boundaries of the RM I and RM II wastewater treatment facilities (ponds with aerators and various piping and pumps). The initial phase of the project also includes the installation of pipelines and facilities that would allow for the use of recycled water from RM I.

Lead Agency Contact

Name Bryan Yamaoka
Agency Sunnyslope County Water District
Phone 831/637-4670 **Fax**
email
Address 3570 Airline Highway
City Hollister **State** CA **Zip** 95023

Project Location

County San Benito
City Hollister
Region
Lat / Long 36° 48' 42" N / 121° 22' 41" W
Cross Streets Airline Highway and Ridgemark Drive
Parcel No.
Township 13S **Range** 5E/6E **Section** **Base** MDB&M

Proximity to:

Highways 25
Airports
Railways UPRR
Waterways San Benito River
Schools Southside, Cerra Vista
Land Use GP: R/URB (Rural/Urban)

Project Issues Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Drainage/Absorption; Geologic/Seismic; Growth Inducing; Landuse; Noise; Public Services; Sewer Capacity; Soil Erosion/Compaction/Grading; Traffic/Circulation; Water Quality; Water Supply; Wetland/Riparian; Wildlife

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Game, Region 4; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 5; Department of Food and Agriculture; Department of Health Services; State Water Resources Control Board, Clean Water Program; State Water Resources Control Board, Division of Water Rights; Regional Water Quality Control Board, Region 3; Native American Heritage Commission; Public Utilities Commission

Date Received 03/05/2009 **Start of Review** 03/05/2009 **End of Review** 04/20/2009

Note: Blanks in data fields result from insufficient information provided by lead agency.

California Regional Water Quality Control Board
Central Coast Region

Linda Adams
Secretary for Environmental Protection

Internet Address: http://www.waterboards.ca.gov/centralcoast
895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401
Phone (805) 549-3147 • FAX (805) 543-0397

Arnold Schwarzenegger
Governor

APR 2009
RECEIVED
SUNNYSLOPE CO.
WATER DISTRICT

April 17, 2009

Bryan Yamaoka
General Manager, Sunnyslope County Water District
3570 Airline Highway
Hollister, CA 95023

Dear Mr. Yamaoka:

RE: DRAFT ENVIRONMENTAL IMPACT REPORT – RIDGEMARK WASTEWATER TREATMENT AND RECYCLED WATER IMPROVEMENTS PROJECT, SAN BENITO COUNTY SCH# 2008071031

We appreciate the opportunity to review and comment on the above-referenced document. We understand that this document investigates an upgrade of the current wastewater treatment system at the Ridgemark Estates development and tertiary treated, reclaimed water uses at the Ridgemark Golf and Country Club. The Central Coast Regional Water Quality Control Board (Water Board) is a responsible agency charged with the protection of the Waters of the State of California in the Central Coast Region. The Water Board is responsible for administering regulations established by the Federal Clean Water Act and the California Water Code (Porter-Cologne Water Quality Control Act). The regulations cover discharges to surface water, groundwater, and discharges to land that may affect ground water quality, and may apply to this project.

To facilitate the regulatory review process, we offer the following suggestions for your review.

Water Reclamation

The Water Board highly recommends the use of reclaimed water for irrigation but the act of reclaiming wastewater involves immense responsibilities from the user and distributor in order to protect public health. The California Department of Public Health – Drinking Water Program (DPH: formerly Department of Health Services), the State Water Resources Control Board (SWRCB), and the Water Board have a Memorandum of Agreement whose purpose is to assure the regulation of reclaimed water will be exercised in a coordinated and cohesive manner. Therefore, the project manager must coordinate with the DPH, the SWRCB, and the Water Board concurrently for any project that proposes water reclamation activity.

Waste Discharge Requirements (WDRs)

Wastewater treatment and disposal systems associated with the proposed project must be consistent with the policies and objectives of the Water Quality Control Plan, Central Coast Region (Basin Plan). The subject draft environmental impact report (DEIR) indicates that the Sunnyslope County Water District will not attain the final effluent limits for salts as stated in the

current waste discharge requirements Order No. R3-2004-0065. Water Board staff will continue to hold the Sunnyslope County Water District responsible for attaining these effluent levels and will continue oversight of surface and groundwater impacts through regulations established in the Federal Clean Water Act and the California Water Code. In addition, the Water Board must approve Waste Discharge/Water Reclamation Requirements (WDRs) prior to allowing discharge of wastes. The WDR adoption process normally takes at least six months from receipt of a complete application. The Sunnyslope County Water District must submit a Report of Waste Discharge six months prior to start-up of the new wastewater treatment and reclamation facility.

Water Quality

The Water Board agrees with the DEIR that the proposed Phase 1 and 2 project presents a significant impact to water quality (Impact HYDRO-2, -6, -7) yet finds the stated mitigative measures (MM HYDRO 2.1, 6.1, 6.2, 6.3, 7.1, 7.2, 7.3) when implemented will reduce the impacts to less than significant. We do not agree with the conclusions of the 'No Project Alternative". The DEIR states that a "No Project Alternative may result in water quality impacts" (emphasis added). Water Board staff contend that a "No Project Alternative" will result in water quality impacts.

Runoff from Urban Development

Urban runoff is a leading cause of pollution throughout California. Greater impervious surface coverage decreases the land's natural capacity to absorb water and remove pollutants, and increases the amount of runoff from rainfall. In addition, urban development creates new pollutant sources as human population density increases and brings with it proportionately higher levels of vehicle emissions, vehicle maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc., which can be washed through the storm drain system into surface waters. As a result, urban development, as indicated by growth in the Ridgemark Estates development, produces runoff which may be significantly greater in volume, velocity and/or pollutant load than pre-development runoff from the same area. Increased runoff volume and velocity can also significantly impact beneficial uses of aquatic ecosystems due to physical modifications of watercourses, such as bank erosion and widening of channels. In order to protect the quality and hydrologic characteristics of surface waters, development should be designed in a way that mitigates the impact of urban development to achieve the Water Board's desired conditions of healthy watersheds.

Desired Conditions of Healthy Watersheds

The Central Coast Water Board implements the California Water Code, Federal Clean Water Act, and Central Coast Water Quality Control Plan to achieve its goal of healthy watersheds. To this end, the Water Board has defined the following desired conditions of healthy watersheds:

- Minimal pollutant loading,

- Rainfall surface runoff at pre-development levels (including peak discharge, time of concentration, runoff volume, and flow frequency),
- Watershed storage of rainfall runoff at pre-development levels (through infiltration, recharge, baseflow, and interflow),
- Watercourse geomorphic regimes within natural ranges (including stream bank stability and sediment supply and transport),
- Optimal riparian and aquatic habitat.

Low Impact Development (LID)

Low Impact Development (LID) is the Water Board's preferred means for mitigating the effects of urban development to achieve healthy watersheds. LID is a land planning and design strategy with the goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design. Hydrologic functions of storage, infiltration and groundwater recharge, as well as the volume and frequency of discharges, are maintained through the use of integrated and distributed micro-scale stormwater retention and detention areas, reduction of impervious surfaces, capture and reuse of runoff, and the lengthening of runoff flow paths and flow time. Other related strategies include the preservation/protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, valuable (mature) trees, flood plains, woodlands, and highly permeable soils. LID is a preferred site scale control measure because it integrates measures that address all of the desired conditions of a healthy watershed. Common LID practices include the following:

- Site design that reduces and disconnects impervious surfaces,
- Native vegetation preservation,
- Bioretention,
- Tree boxes to capture and/or infiltration street runoff,
- Vegetated swales, buffers, and strips,
- Directing roof runoff into planter boxes and other vegetated areas,
- Permeable pavement,
- Soil amendments to increase absorption and infiltration rates.

We recommend that these and other LID practices be implemented as much as possible in order to match pre-development hydrologic conditions and to protect water quality prior to further housing development in the Ridgemark Estates area.

Army Corps of Engineers and California Department of Fish and Game Regulation

Clean Water Act Section 404 involves protection of waters of the State and is within the jurisdiction of the U.S. Army Corps of Engineers. **The Water Board must certify that any permit issued by the Army Corps of Engineers pursuant to Section 404 of the Clean Water Act complies with state and federal water quality standards.** Section 401 Water Quality Certification is necessary for all Section 404 permits, including reporting and non-reporting nationwide permits. This office will review section 401 applications after the Section 404 permit process has begun. Additionally, any project that involves disturbance of a stream

bank or riparian area must also obtain a Streambed Alteration Agreement from California Department of Fish and Game.

California Wetlands Conservation Policy

Portions of the new wastewater treatment and recycling facility and planned pipeline routes may fall near or on wetlands. According to the California Wetlands Conservation Policy the project must ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetland acreage and values in California. The Water Board prefers to avoid any loss of wetlands. If loss is unavoidable, mitigation plans, MMBIO-15.1 through MMBIO-15.26 should be implemented to achieve an adequate replacement ratio.

Construction Planning

The Sunnyslope County Water District must limit grading and excavation to the dry season. During wet weather, the potential for critical erosion and sedimentation problems increases drastically for construction sites. Wet weather is typically between October 15 and April 15. For this reason, **the Water Board advises that construction activities that involve work on a cleared site be conducted during the dry season. If this is not possible, then erosion and sedimentation best management practices (BMPs) must be in place during the rainy season. During the dry season, BMP materials must be on site and accessible in case of unseasonable precipitation events.** Furthermore, it is advised that the amount of graded and grubbed areas be limited (suggest two acres at a time) during the rainy season. All construction projects disturbing more than one acre must comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity

Drainage

Please be aware that the Basin Plan requires a minimum thirty foot filter strip (buffer) between significant land disturbance and the highest anticipated water line in water courses whenever possible (Section V.G.4). Buildings and construction activities should be located outside of the thirty-foot filter strip.

Storm Water and Nonpoint Source Pollution

To avoid costly redesigns in the project, we encourage the project proponents to include requirements for BMPs that will be incorporated during construction phases (Construction BMPs), and also within the project design (Post-construction BMPs). Construction phase BMPs are temporary measures to control sediment, erosion, and runoff from construction sites. Post-construction BMPs are incorporated into project design as permanent pollution control methods. Control methods include increasing on-site retention and infiltration of storm water, which by nature decreases the amount of pollution-bearing water from reaching natural water bodies.

To fulfill storm water regulations, prior to initiating construction the project manager must file a Notice of Intent for enrollment under the National Pollutant Discharge Elimination System

(NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit). A draft of the new General Permit, including post-construction requirements can be found at: http://www.waterboards.ca.gov/stormwtr/constpermits.html.

Slopes exceeding 30%

The Water Board regulates disposal of solid and liquid wastes to land (such as wastewater ponds, septic systems, reclamation projects, etc.) All such disposal systems must comply with the Water Quality Control Plan, Central Coast Basin (Basin Plan), and with requirements stipulated by the California DPH. The Basin Plan sections VIII.D.3.a and i outline disposal site suitability and prohibitions.

The slope of the site could influence problems that typically occur with on-site disposal systems. The Basin Plan prohibits such disposal on slopes exceeding 30%. Minimal irrigation (only to demand) should occur, thus reducing potential impacts due to runoff. Furthermore, design of the proposed system must preclude surfacing.

If you have comments or questions regarding this matter please contact **Cecile DeMartini at (805) 542-4782 or cdemartini@waterboards.ca.gov** or Chris Adair at (805) 549-3761.

Sincerely,

for Roger W. Briggs
Executive Officer

Cc:

State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

S:\CEQA\Comment Letters\San Benito County\Ridgemark WWTPandRecycling_DEIR#2008071031.doc

MONTEREY BAY
Unified Air Pollution Control District
serving Monterey, San Benito, and Santa Cruz counties

Air Pollution Control Officer
Richard Stedman

24580 Silver Cloud Court • Monterey, California 93940 • 831/647-9411 • FAX 831/647-8501

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Monterey County

Reb Monaco
San Benito
County

Richard Ortiz
South Monterey
County Cities

April 20, 2009

Sent Electronically To:
bryan@sscwd.org
Original Sent by First Class Mail

Mr. Bryan Yamaoka, General Manager
Sunnyslope County Water District
3570 Airline Highway
Hollister, CA 95023

SUBJECT: DRAFT EIR FOR RIDGEMARK WASTEWATER TREATMENT AND RECYCLED WATER IMPROVEMENTS PROJECT

Dear Mr. Yamaoka:

The Air District submits the following comments for your consideration:

Federal Conformity. Page 152.
The Draft EIR describes the North Central Coast Air Basin (NCCAB) as being subject to federal conformity requirements. This is not correct. Upon the revocation of the federal 1-hour ozone standard on June 15, 2005, the NCCAB became designated as attainment for all federal standards. As a result, it no longer is subject to federal conformity requirements.

Federal "Maintenance" Designation. Page 155.
As described in the first paragraph, the NCCAB is now designated "attainment" for federal air quality standards.

MM AIR 2-1. Pages 162-163.
This mitigation measure specifies that an "Operations and Maintenance Manual" (Manual) and an "Odor Minimization Plan" (Plan) would be prepared to reduce odors to a less than significant level. However, the Manual and Plan are not provided in the DEIR, despite the listing of various measures that would be incorporated into the documents; the DEIR does not provide the meaningful and timely review required by CEQA. The Air District suggests that the Final EIR include both documents, and would be glad to work with the Water District to assist in their development.

MM AQ-4-1. Page 163.
Given the potential for windblown dust, the Air District suggests that the Water District consider a more complete list of measures, which follows:

- Limit grading to 8.1 acres per day, and grading and excavation to 2.2 acres per day.
- Water graded / excavated areas at least twice daily. Frequency should be based on the type of operations, soil and wind exposure.
- Prohibit all grading activities during periods of high wind (over 15 mph)
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations, and hydro-seed area.
- Haul trucks shall maintain at least 2'0" of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- Pave all roads at construction sites.

MM AQ-5.1 and AQ-5.2. Page 164.
To ensure that the Air Quality Dust Control Program and Dust Abatement Program for Construction reduce impacts to a less than significant level, the Air District suggests that the Water District work with it to develop these Programs, and that MM AQ 5-1 and MM AQ 5.2 be revised to require the Air District's prior approval.

Appendix E. Page 6.
As specified in the first paragraph, the NCCAB is now designated attainment for federal air quality standards.

Appendix E. Page 9.
The document specifies demolition debris. Any demolition should be discussed with the Air District before it is begun.

Thank you for the opportunity to review the document.

Sincerely,

Jean Getchell
Supervising Planner
Planning and Air Monitoring Division

San Benito County Water District

30 Mansfield Road • P.O. Box 899 • Hollister, CA 95024-0899 • (831) 637-8218 • Fax (831) 637-7267

APR 2009
RECEIVED
SUNNYSLOPE CO.
WATER DISTRICT

April 23, 2009

Mr. Bryan Yamaoka
District Manager
Sunnyslope County Water District
3570 Airline Highway
Hollister, CA 95023

SUBJECT: San Benito County Water District's comments on the Draft EIR for the Ridgemark Wastewater Treatment and Recycled Water Improvement Project

Dear Mr. Yamaoka:

The San Benito County Water District (SBCWD) appreciates the opportunity to provide comments on the Draft EIR for the Ridgemark Wastewater Treatment and Recycled Water Improvement Project. Please find our comments attached for your review.

We request that subsequent documents related to the project be submitted to SBCWD for our review. If you have any questions regarding our comments, please contact me at (831) 637-8218.

Sincerely,

Jeff Cattaneo, P.E.
District Manager/Engineer

San Benito County Water District

Draft Environmental Report

Ridgemark Wastewater Treatment and Recycled Water Improvements Project

The comments are presented in the order and organization of the Draft Environmental Report.

Summary

The Summary states:

"The proposed project is the Implementation of a wastewater system improvement project to meet the long-term treatment and disposal needs of the Sunnyslope County Water District." While broadly accurate, this statement does not disclose to public officials and the public the specific purpose and need for this project and is not consistent with the title of the document.

A statement in the following form is suggested.

The proposed project is the implementation of portions of the Hollister Urban Area Water and Wastewater Master Plan in the Sunnyslope County Water District wastewater service area and in the Sunnyslope water system service area known as the Ridgemark Wastewater Treatment and Recycled Water Improvements Project.

As proposed the Sunnyslope CWD boundaries and the wastewater and water system service areas extend beyond their current boundaries and beyond the Hollister Urban Area as adopted by San Benito County, City of Hollister and San Benito County Water District and agreed to by Sunnyslope when it executed the amended Hollister Urban Area Water and Wastewater Memorandum of Understanding. This expansion of the Sunnyslope CWD and its wastewater and water service areas is discussed in detail in this Draft EIR.

The Draft EIR will have to be modified to include a forth right discussion of the proposed expansion of SSCWD's boundaries and services areas, address consistency with relevant plans and policies, assess any environmental impacts, provide mitigation or adopt statements of over riding considerations.

The presentation of the three sub phases of the project reviewed at the project level in this EIR is a difficult read and is not consistent with the latter Table presenting the phases and level of CEQA review. Phase 1.c does not include recycled water distribution as presented in the Summary.

The relationship of phase 2 improvements to the HUAWWMP are not clearly presented in this summary or in the body of the Draft EIR Given the comprehensive and integrated nature of the HUAWWMP improvements and the necessary consistency between SSCWD's plan and that plan, additional effort in this area is necessary. The relationship between the phases and subphases of this project and program to the phases of the HUAWWMP must be provided and be clear.

The summary is silent on SSCWD's intention to adopt a water softener ordinance. SSCWD is obligated under the HUAWWMP MOU to implement "rigorous source control "as a first measure to reduce TDS and achieve recycled water quality goals. That action as well as other source control obligations of SSCWD should be clearly presented in the summary.

Summary of Growth-Inducing Impacts

It is not clear from the presentation that portions of the service area of the proposed improvements are outside the current SSCWD boundaries and outside the Hollister Urban Area as adopted by the partners in the HUAWWMP MOU including SSCWD. This presentation does not disclose to public officials and the public that the proposed project includes specific capacity for lands outside the current boundaries of SSCWD and the HUA or that development of these lands is not consistent with the current County General Plan. The intended purpose and need for including these lands (Figure 4) in the proposed project should be clearly stated.

Known Areas of Controversy

While there may be no current known areas of controversy. A reasonable person would conclude that the rate increases necessary to fund these improvements and the adoption and implementation of a water softener ordinance will be controversial.

There is also the issue of assessing existing customers for capacity for future service outside SSCWD and outside its wastewater and water service areas. Controversies in this area could extend to the legality under State law (Prop. 218) of assessing parcels for benefits they do not and will not receive.

Section 1.0 INTRODUCTION, BACKGROUND, AND PROJECT DESCRIPTION

1.3 PROJECT DESCRIPTION

See comments on Summary which also apply, in part, to the project description.

1.4 PROJECT OBJECTIVES

The recent modifications to the Summary to include the Hollister Urban Area Water and Wastewater Memorandum of Understanding and the HUAWWMP must be supported by appropriate changes and additions to the text. Consideration should be given to including HUAWWMP MOU objectives in the project objectives where appropriate.

An objective for adopting a water softener ordinance to provide residential source control and eliminate unnecessary additions of minerals to the wastewater system should be added as should programs for industrial and commercial source control.

1.5 USES OF THE EIR

If this EIR will be used to demonstrate SSCWD compliance with it obligations under the HUAWWMP MOU that use should be cited. If SSCWD intends to secure the necessary agreements with San Benito County, City of Hollister and San Benito County Water District by other means that process should be identified. This is particularly the case with MOU Section 2.1.3.

" 2.1.3 The selection of wastewater treatment processes and disposal methods shall include careful consideration of future wastewater disposal requirements and provision for maximum reuse of wastewater. The selection of wastewater disposal options and sites shall be agreed to by the City of Hollister, San Benito
County and San Benito County Water District provided that disposal shall not:

a. Impact drinking water supplies or negatively impact adjacent land uses or property values unless fully mitigated to the satisfaction of the City of Hollister, San Benito County and San Benito County Water District, or ...". See comments on Consistency with Relevant Plans and Policies and Hydrology and Water Quality.

SECTION 2.0 CONSISTENCY WITH RELEVANT PLANS AND POLICIES

2.1 GROUNDWATER MANAGEMENT PLAN

The Draft EIR states that the proposed project is consistent with Water Quality Objective 1 and Water Quality Criterion 1-1 through 1-3. The proposed project is in fact not consistent with Water Quality Criterion 1-1 through 1-3.

The Central Coast Regional Water Quality Control Board Basin Plan includes the following:

"II.A. ANTI-DEGRADATION POLICY

Whenever the existing water quality is better than the quality of water established herein as objectives, such existing quality shall be maintained unless otherwise provided by the provisions of State Water Resources Control Board Resolution No. 68-16, 'Statement of Policy with Respect to Maintaining High Quality of Waters in California' including any revisions thereto..."

"II.A.5 OBJECTIVES FOR SPECIFIC GROUND WATERS

Certain water quality objectives have been established for selected ground waters; these objectives are intended to serve as a water quality baseline for evaluating water quality management in the basin. The median values for ground waters are shown in Table 3-8.

The restrictions specified for Table 3-7 are applicable to the values indicated in Table 3-8; i.e., the values are at best representative of gross areas only. ... Therefore, application of these objectives must be consistent with the objectives previously stated in this chapter and synchronously reflect the actual ground water quality naturally present. The Regional Board must afford full consideration to: (1) present and future beneficial uses affected by the waste discharge; (2) competing beneficial uses; (3) degree of impact on existing beneficial uses; (4) receiving water quality; and (5) water quality objectives, before determining priority of a dominant use and promulgating waste discharge requirements."

The wastewater percolated at the existing Ridgemark Plants and to be percolated after completion of the proposed project is, as documented in this draft EIR, clearly of much poorer quality that the water quality naturally occurring at this site and does not meet the objectives for agricultural , M&I or domestic beneficial use. This is further demonstrated by the necessity to blend the wastewater with other water to achieve a quality acceptable for golf course irrigation. This document does not present the basis for stating categorically that "The proposed project is consistent with Water Quality Objective 1 and Water Quality Criteria 1-1 through 1-3.

This issue is discussed in greater detail in the Hydrology and Water Quality Section.

2.2 HOLLISTER URBAN AREA WATER AND WASTEWATER MASTER PLAN

This presentation would be improved by adding the fact that the HUAWWMP MOU was amended to include SSCWD and adopted by all parties. The amendments are critical to this project and the presentation must be modified to reflect those amendments.

HUAWWMP MOU Objective 2.2.4 has been amended to read:

"This provision shall not preclude satellite wastewater separation plants for the recovery of water for local recycling or the upgrading of the SSCWD Ridgemark Estates Wastewater Treatment Plants for local recycling, including but not limited to the Ridgemark Golf Course."

Without this amendment, the proposed project would not be consistent with the HUAWWMP MOU. Before the amendment, the only exception to centralized treatment was "Satellite wastewater separation plants". The proposed project plant is not a "satellite wastewater separation plant".

HUAWWMP MOU Section 2.1.3 requires that the selection of treatment process and disposal methods carefully consider ... maximum reuse of wastewater. To claim consistency with this section SSCWD must demonstrate that the treatment process carefully considered maximum reuse of wastewater and why it is not achieving maximum reuse of wastewater.

Further, consistency with HUAWWMP MOU Section 2.1.3 can only be achieved by agreement with San Benito County, the City of Hollister and San Benito County Water District and their satisfaction with the mitigation of any impacts on drinking water supplies or negative impacts on adjacent land uses and property values.

How does SSCWD propose to secure these agreements and satisfactions?

Consistency of the proposed project with Section 2.2.3 which states "This objective shall be met first by rigorous source control including, but not limited to, the elimination of on-site regenerating water softeners and second by demineralization. ... The recycled wastewater objective shall be met by the two measures identified above and the objectives of Section 2.2.2 as soon as practical and not latter than by 2015."

SSCWD's proposed project is not consistent with this objective. The proposed project includes no rigorous source control as a first measure and in fact delays the elimination of on-site water softeners until after 2015 and possible until 2040.

Consistency with the remaining sections of the HUAWWMP MOU depend upon consistency with Section 2.1.3 and acceptance of future actions by SSCWD addressed only at a program level at this time. Clear presentation of the phasing and speculative nature of the future phases addressed at a program level is essential to the public official and public reader.

2.5 COUNTY OF SAN BENITO GENERAL PLAN

The matter of SSCWD's intent with respect to including an expanded service area in this EIR requires clarification to determine consistency with the San Benito General Plan and the accuracy of statements in this section.

Does SSCWD have request for service from these landowners? Does SSCWD have contractual obligations to these landowners to support extension of water and wastewater service? Why does this proposed project include expansion of SSCWD boundaries and services areas at this time.

3.1 Land Use

Section 3.1.2.4 discusses impacts to land uses including prime farmland, but does not acknowledge any impact from the siting of brine evaporation ponds near a residential area. Nor does it mention that the site considered has an agricultural conservation easement attached to it.

3.3 HYDROLOGY AND WATER QUALITY

The presentation and environmental review of water quality needs to be expanded to disclose for public officials and the public that SSCWD's existing and proposed wastewater disposal impacts groundwater quality and the extent to which it does so. Limiting the assessment to salinity is not adequate.

The presentation of RWQCB Discharge Requirements for Ridgemark Estates (Order No. R3-2004-0065) is incomplete and misleading. The presentation excludes the "Groundwater Limitations" of the order which prohibit specific impacts on the underlying groundwater. These limitations must be addressed.

The Groundwater Limitations of the Order include: "7. The discharge shall not cause a statistically significant increase of mineral or organic constituent concentrations in the underlying groundwater, as determined by statistical analysis of samples collected from wells in the vicinity of the disposal area."

In the section of this draft EIR entitled "Salinity" the following statement is made "Data from three shallow monitoring wells that appear to represent ambient shallow groundwater quality upgradient of Ridgemark I and II wastewater facilities have TDS concentrations generally in the 600 – 700 mg/l range. Salinity in the Ridgemark area is approximately 600 – 800 TDS with plumes of up to 1600 mg/l down gradient of the RM I and RM II percolation ponds." Groundwater modeling done by Gus Yates assumes a wastewater discharge quality of 600mg/l, with a starting water quality delivered to customers of 250mg/l. Given the difficulty to demineralize groundwater to that level it is likely that the wastewater discharge TDS will be significantly higher than 600 mg/l TDS. Therefore, the impacts to groundwater may be significantly understated.

The impact of current and proposed discharge to the groundwater by percolation clearly causes a "statistically significant" increase in the mineral concentrations of the underlying groundwater when compared to the upgradient groundwater quality as reported in the screen check draft EIR. As such the proposed project does not meet the requirements of Order No. R3-2004-0065. The EIR must address each of the "Groundwater Limitations" in the Order, including but not limited to mineral constituents and nutrients.

Tests run for SBCWD demonstrated that PPCPs found in SSCWD wastewater were also found in drinking water wells down gradient from RMI.

From the groundwater modeling the area of impact from existing and future wastewater disposal can be inferred and includes impacts on numerous existing wells including Ridgemark Golf Course wells, Sunnyslope CWD drinking water wells(existing and future), and ag and individual drinking water wells (Figure 11 and Figure 14)

There are clearly impacts on beneficial uses and users of groundwater adjacent to RMI. This is the site selected for future disposal by percolation. The groundwater quality as impacted by wastewater percolation must be compared to the local and basin plan standards for the beneficial uses adjacent to the disposal site and for compliance with Order No. R3-2004-0065. From this the "thresholds of significance" can be applied qualitatively, impacts determined and disclosed. Mitigations can then be developed and proposed.

The EIR should include presentation of representative water quality analysis from SSCWD monitoring wells, from area drinking water wells and other monitoring wells, including but not limited to Granite Rock, Southside Quarry and Cielo Vista Estates.

Among the mitigation measures SSCWD must consider extending treated drinking water to the residences along Southside road that are or may be impacted by its current and continued wastewater disposal.

SSCWD must also implement detailed water quality monitoring and analysis to determine the extent to which current and proposed wastewater disposal impacts the drink water delivered to their customers.

The acceptability of these impacts and mitigation measures must be agreed to by San Benito County, the City of Hollister and San Benito County Water District.

The fact that the regional Board, in weighing the factors they weigh, allowed discharge at 1200 mg/l TDS is not necessarily the weighing of factors or end result for local interests.

The extent and nature of water quality impacts must be more completely and clearly described and assessed in this EIR including the condition where phase 2 improvements are not implemented.

SECTION 4.0 GROWTH-INDUCING IMPACTS

This presentation states "The proposed project is designed to serve existing land uses and future growth allowed under the County of San Benito General Plan, in accordance with the adopted San Benito County Growth Management System. There must be clarification concerning the relationship between the proposed capacity and water and wastewater service to the expanded service area which includes land outside the Hollister Urban Area and outside SSCWD existing boundaries.

The report and ground water modeling ignore the fact that the Ridgemark Golf Course wells, SSCWD wells, ag wells and individual drinking water wells currently extract percolated wastewater, accordingly the quantity of wastewater recycled can not be identified as an increase in area water supply and can not be used to offset induced growth impacts. A much more rigorous analysis would be required to quantify any increase in area water supply.

5.3.4.2 Impacts from the Project (Changes in Emissions of Greenhouse Gases)

In considering the operational emissions can you take a credit for reduced groundwater pumping and/or San Felipe water pumping as a result of the use of recycled water? If so SBCWD as information of the energy used to delivery water from the Delta to SBCWD and for distribution system pumping.

City of Hollister
Development Services
Planning Division

375 Fifth Street, Hollister, CA 95023 Ph (831) 636-4360 Fax (831) 636-4364

April 24, 2009

Attention: Bryan Yamaoka, General Manager
Sunnyslope County Water District
3570 Airline Highway
Hollister, California 95023

Subject: Written comments on the Draft Environmental Impact Report for the Sunnyslope County Water District Ridgemark Wastewater Treatment and Recycled Water Improvements Project (SCH# 2008071031)

Dear Mr. Yamaoka:

The City of Hollister received a Draft Environmental Impact Report for the Sunnyslope County Water District Ridgemark Wastewater Treatment and Recycled Water Improvements Project. The City of Hollister submits the following comments on the Draft EIR.

Project Description Section 1.31, Figures 4 and 5 and Growth Inducing Impacts:

The City of Hollister requests the following revisions to Figure 4 to correct factual errors and avoid confusion:

1. Eliminate the pink shaded areas identified as 'City of Hollister Proposes to Serve Pink Parcel' for the following reasons.
    a. The new City of Hollister regional wastewater treatment facility could serve all lands within the boundary shown on Figure 4 as the 'Hollister Service Area Boundary'. This includes the areas shaded orange and some lands that are shaded pink and white. This should be clearly shown on Figure 4 and explained in the project description.
    b. Figure 4 gives the impression that that the City of Hollister is proposing to provide wastewater service to over 500 acres of lands that are shaded pink that are outside of the Hollister Service Area Boundary. These parcels (identified as lands of Nino and Lima -APNs 25-19-32, 25-19-33, 25-20-01 and portions of 25-20-64) are outside of the Hollister Service Area Boundary and were not included in the MOU, the Long Term Wastewater Treatment Master Plan and Urban Water Master Plan. The City of Hollister has not approved plans and does not propose as part of this project to serve lands outside of the Hollister Service Area Boundary. Please correct the map.
    c. Figure 4 includes some selected lands with pink shading located within the Hollister Service Area boundary as areas that the City of Hollister proposes to provide wastewater service. The City of Hollister approved regional wastewater treatment facility could provide service over time to all lands within the Hollister Service Area Boundary, not just the lands shaded pink identified as Dividend Homes, Gavilan College, Mohehuddin, High School and the Cielo Vista Estates subdivision. Elimination of the pink shading will avoid confusion about service areas.

2. Figure 4 illustrates roughly 285 acres of 'blue parcels 'noted as 'Lompa' and Lima' that the District intends to provide wastewater disposal service to in the long-term. The properties are outside of the Sunnyslope County Water District Sphere of Influence illustrated on Figure 5 and are outside of the Hollister Urban Water Master Plan Water Service Area (see attached map). Please explain in the project description whether the District intends to expand the Sphere of Influence to provide water as well as sewer service to the lands shaded blue. Please revise the project description to quantify the following: 1) acreage of land outside the Sunnyslope County Water District Sphere of Influence that the district intends to provide wastewater service and/or water service; 2) the anticipated land use and development density; 3) the anticipated timing/phasing for service and necessary infrastructure improvements; 4) types of planning approvals required for the anticipated land use; 5) if water service is anticipated, include a description of the additional water supply capacity improvements required .
3. Figure 4 shows a long-term wastewater service area outside of the Sunnyslope County Water District Sphere of Influence and the Hollister Service Area Boundary. Please evaluate the following in the Final EIR: 1) the district's ability to provide water and wastewater to the existing service area/SOI ; 2) the net increase in the demand for wastewater and water service to lands outside of the District's SOI and Hollister Service Area Boundary; 3) the growth-inducing impacts of a potential SOI expansion 4) the near-term and long-term cumulative impacts to the City of Hollister water supply system capacity as a back-up water service provider 5) consistency with local and regional plans.

Please clarify in the project description and Section 1.5, Uses of the EIR whether the EIR is intended to serve as a basis for expansion of the Sphere of Influence for water supply and sewer collection. If so, this was not clear in the Notice of Preparation project description and the EIR should be re-circulated and clearly documented with supporting environmental analysis.

Page 6, sentence 2 states that the population in the SSCWD to be served by the wastewater treatment plant is projected to increase from 1,929 persons to 4,929 persons by 2025 – about 3,000 persons. Please quantify the amount of growth anticipated from the 'orange – near term' parcels shown on Figure 4 and the amount if any growth that is proposed by the SSCWD outside of the adopted Sphere of Influence.

It is suggested a meeting with the Sunnyslope County Water District, San Benito County Planning and the City of Hollister be scheduled to clarify the relationship of growth areas shown on Figure 4 (blue and pink) to existing planning documents and how the growth inducing impacts will be addressed in the DEIR.

Section 2.0 Consistency with Relevant Plans and Policies:
The City of Hollister has the following comments regarding the consistency analysis with the Memorandum of Understanding Hollister Urban Area Water and Wastewater Master Plan (MOU).

Principle 2.1.3 subsections b states that wastewater treatment processes and disposal methods shall be consistent with applicable General Plans or policies including preservation of agricultural land. The DEIR does not evaluate the consistency of the proposed service outside of the Sunnyslope County Water District Sphere of Influence with the San Benito County General Plan.

Principle 2.1.7 states that impacts of water supply and treatment and wastewater treatment and disposal to preservation of agriculture and agricultural land shall be carefully evaluated and minimized. . The proposed locations for Potential Potable Water Projects Sites (Phase II) are located on prime agricultural lands. One of the brine fields (Campisi) is the open space agricultural conservation easement established by a Planned Unit Development. The use of this property conflicts with the agricultural conservation easement and Principle 2.1.7. For consistency, add alternative potable water project sites in the FEIR that are consistent with Principle 2.1.7.

Principle 2.1.7 also states that impacts of water supply and treatment and wastewater treatment and disposal shall consider rates and charges including connection/impact fees and property values. The consistency analysis lacks an evaluation of the feasibility of all phases of the project with and without proposed expansion outside of the existing Sunnyslope County Water District Sphere of Influence.

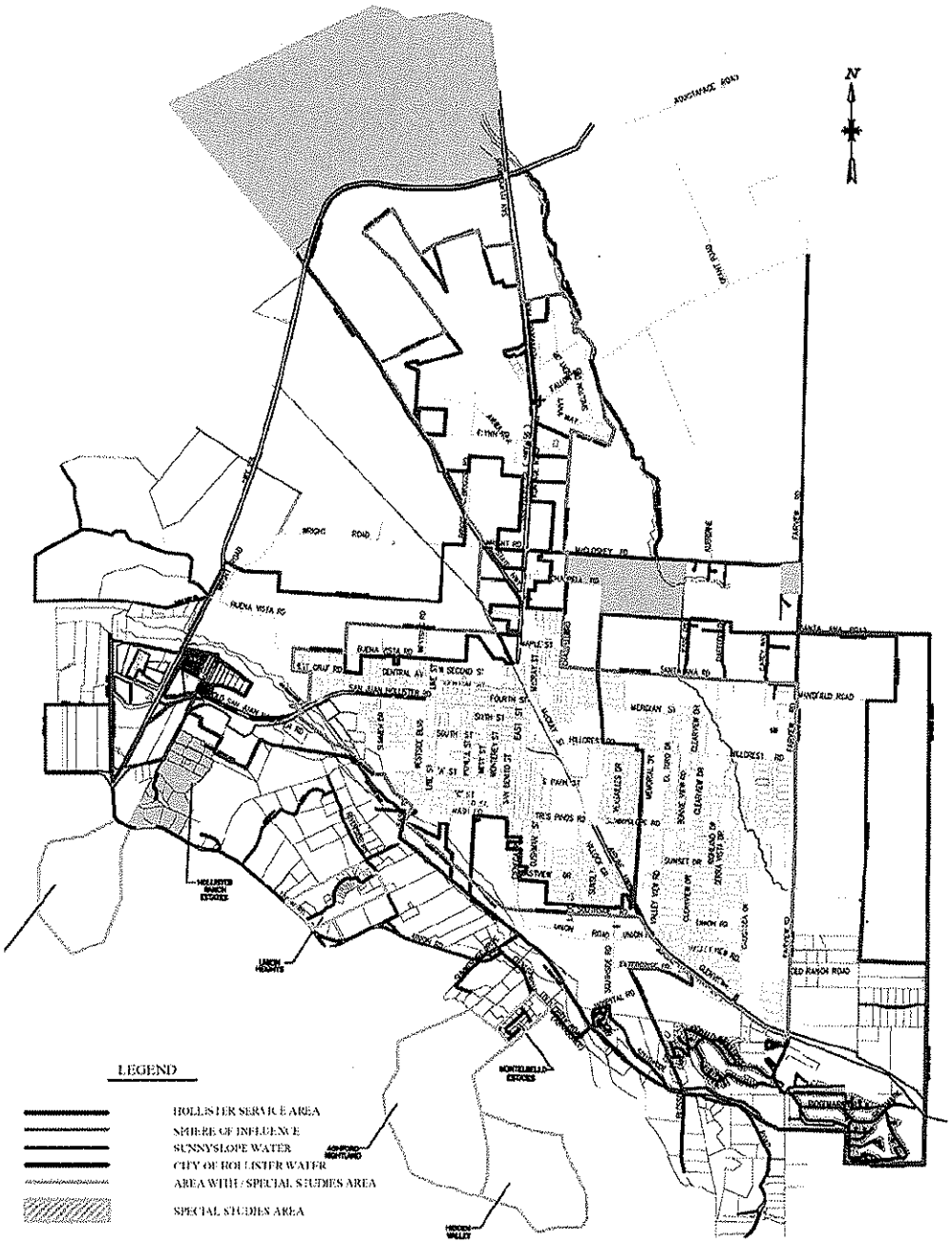
Section 6.0 Alternatives to the Proposed Project: In order to maintain consistency with other regional wastewater and water long-term planning efforts, please amend the alternatives analysis to include discussion of connection to the City of Hollister regional wastewater treatment facility.

The City of Hollister thanks the Sunnyslope County Water District for the extension of time to submit written comments. We are available to meet and discuss the submitted comments if you have any questions or would like clarification.

Sincerely,

Mary M. Paxton
Planning Manager
City of Hollister Development Services

Cc: Clint Quilter, City Manager, City of Hollister
Steve Wittry, City Engineer, City of Hollister
Jeff Cattaneo, San Benito County Water District
Art Henriques, San Benito County Planning
Judy Fenerty, David Powers Associates



HOLLISTER SERVICE AREA

Kennedy/Jenks Consultants

San Benito County, California

Hollister Area UWMP
Hollister Service Area
0568017.00
June 2008

Figure ES-1

A RESOLUTION OF THE BOARD OF DIRECTORS - RIDGEMARK HOMES ASSOCIATION

April 21, 2009

A RESOLUTION OPPOSING THE PLANNED ROUTES OF A NEW PIPELINE FOR THE DISTRIBUTION OF RECYCLED WATER USING THE STREETS OWNED AND MAINTAINED BY RIDGEMARK HOMES ASSOCIATION

WHEREAS: Ridgemark Homes Association is a nonprofit mutual benefit corporation organized under the Nonprofit Mutual Benefit Corporation Law.

WHEREAS: Ridgemark Homes Association (the Association) is the owner and charged with maintenance of common property including approximately 8.5 miles of roads that provide ingress and egress for the members and guests of Ridgemark Homes Association as well as the members and guests of several other home owner associations and Ridgemark Golf and Country Club, Inc. (RG&CC).

WHEREAS: Ridgemark Homes Association represents 662 members who own parcels within Ridgemark Estates.

WHEREAS: The original Developer of Ridgemark Estates agreed to spend $700,000 on required road improvements and did spend that amount in the years 2002 and 2003.

WHEREAS: The Members of Ridgemark Homes Association voted to acquire these roads from the original Developer and did take ownership on January 1, 2003. The Members also approved a special assessment of $800.00 per parcel and the expenditure of money from the regular annual assessment of approximately $130.00 per year for the maintenance and improvement of these roads. The Road Maintenance Committee of the Association has spent $825,000 for the period 2004 through 2008 in the maintenance and upgrading of the roads and they are currently in excellent condition.

WHEREAS: Ridgemark Homes Association recognizes the requirement placed on Sunnyslope County Water District Company (Sunnyslope) to provide for the disposal of recycled water and the potential for RG &CC and others to utilize this recycled water.

THEREFORE, BE IT RESOLVED, by the Ridgemark Homes Board of Directors:

The Board opposes the plan for the digging of a trench and laying pipe beneath current roads for the purpose of carrying recycled water to various mixing ponds located on RG&CC property. Such an action on these roads will do significant long term damage and will be unsightly. The Board of Directors requests that an alternate routing be developed for the trenching that would minimize the impact on Ridgemark Estate roads.

Be it Further Resolved, that the Draft Environmental Impact Report for the Ridgemark Wastewater Treatment and Recycled Water Improvements Project is inadequate in that it fails to assess the significant adverse environmental impacts of the project on the private roads owned by the Ridgemark Homeowners Association and the private property of the homeowners that will be taken or condemned by Sunnyslope in order to construct the project.

PASSED AND ADOPTED BY THE RIDGEMARK HOMES BOARD OF DIRECTORS BY THE FOLLOWING VOTE AT A REGULARLY SCHEDULED BOARD MEETING ON APRIL 21, 2009.:

AYES: 6 NOES: 0

By: _____ Board President

By: _____ Board Secretary

JOHN S GREGG
665 S Ridgemark Dr
Hollister, CA 95023-6430

April 20, 2009

Board of Directors
Sunnyslope County Water District
3570 Airline Highway
Hollister, CA 95023

Subject: Draft EIR Ridgemark Wastewater Treatment and Recycled Water Project

State Clearing House Number 200807103

Members of the Sunnyslope County Water District Board

The Draft EIR does not address a significant issue; the impact of wastewater disposal by percolation at the Ridgemark Estates Wastewater Treatment Plants on the water quality at Sunnyslope CWD drinking water wells and other drinking water wells in the area. The proposed project will continue disposal by percolation at Ridgemark Estates I.

From the groundwater modeling presented in the DEIR the area of impact from existing and future wastewater disposal can be seen to include numerous wells including existing and future SSCWD drinking water wells. The impact of wastewater on these wells can be assessed by relatively standard groundwater quality analysis methods as was done in the study of the area of impact of the City of Hollister Wastewater Plants. These analysis should be done and included in any consideration to continue wastewater disposal by percolationat Ridgemark Estates Wastewater Treatment Plant I (RM I).

The confidence and safety of your Ridgemark customers demands that you determine if SSCWD is practicing "toilet-to-tap" wastewater recycling in it current practices and/or its future plans.

The San Benito County Water District has already demonstrated that PPCPs (Pharmaceuticals and Personal Care Products) found in SSCWD RMI wastewater were also found in drinking water wells down gradient from RM I. A copy of a presentation of these results is enclosed.

This is a very serious matter which your EIR and your decision as a Board to certify an EIR and approve a project must address.

Respectfully

John S Gregg

cc: Rodger Briggs, Central Coast Regional Water Quality Control Board
Governance Committee, Hollister Urban Area Water and Wasterwater Master Plan

Constituents of Concern in Local Wastewaters and Water Sources

Presentation to
San Benito County Water District
and Regional Utilities
February 25, 2002

Montgomery Watson Harza

Anne Braghetta, Ph.D.

Presence of pharmaceuticals, personal care products and hormones in wastewater and water supply sources

Wastewater Constituents: Are They Transported to Water Supply?

- Do wastewater discharges affect groundwater quality?
- Do wastewater recharge basins affect groundwater quality?
- Do Pharmaceuticals and Personal Care Products (PPCPs) show connection between wastewater and water supply?

WWTPs Have Little Control Over Influent Wastewater Characteristics

- **Source Control / Pretreatment Programs**
  - Heavy Metals, Chlorides, pH, Grease
- **Most Are Virtually Uncontrolled**
  - Salts
  - Pesticides
  - Pharmaceuticals & Personal Care Products (PPCPs)

Treatment Processes Are Driven By Receiving Water / Reuse Objectives

- Preliminary Screening and Grit Removal
- Primary Sedimentation
- Secondary (Biological) Treatment
- Tertiary (Filtration) Treatment
- Disinfection

No removal of TDS occurs at typical WWTPs

Parameters of Concern Vary By Receiving Water / Expected Uses

- **Drinking Water Sources / Body Contact**
  - Microbial: Viruses, Pathogens, Bacteria
  - Toxics: Heavy metals, pesticides, dioxins
  - Others: Nitrates
- **Ecosystem Protection**
  - Oxygen depletion: Organics, nutrients
  - Toxics: Heavy metals, pesticides, dioxins
- **Water Reuse Issues - Irrigation Water Quality**
  - Salts, boron, nutrient levels
  - Others: PPCPs, Hormones

Surface and Ground Water Quality Concerns are Different

- Surface water requires pathogen control: Giardia, Cryptosporidium, bacteria, viruses
- Surface water requires particulate removal
- Groundwater: Direct Surface Water Influence determined by coliform bacteria monitoring and MPI
- Groundwater Concerns: Nitrate, Arsenic

Primary Drinking Water Standards

- Inorganics: Nitrate, Arsenic, Metals
- Volatile Organics: including MTBE
- SOCs: pesticides, herbicides
- Radioactivity
- THMs

Secondary Drinking Water Standards

- Health-Related: TDS (Salinity), Sodium, Sulfate, Aluminum
- Aesthetics: TDS, Color, Foaming agents
- Unregulated: Hardness ions

Pharmaceuticals and Hormones Pose New Drinking Water Concern

- Pharmaceuticals and Personal Care Products (PPCPs)
- Endocrine Disrupting Compounds (EDCs) such as natural and synthetic hormones, etc.

Broad Variety of PPCP and EDC Categories Exist

- Analgesics (pain inhibitors)
- Antibiotics (human and veterinary)
- Anti-epileptic medicines
- Anti-inflammatory medicines
- Bath additives
- Blood lipid regulators
- Detergents
- Fragrances
- Hormones
- Stimulants
- Sunscreens
- X-ray contrast media

PPCPs and EDCs in Wastewater Treatment May Have Different Fates

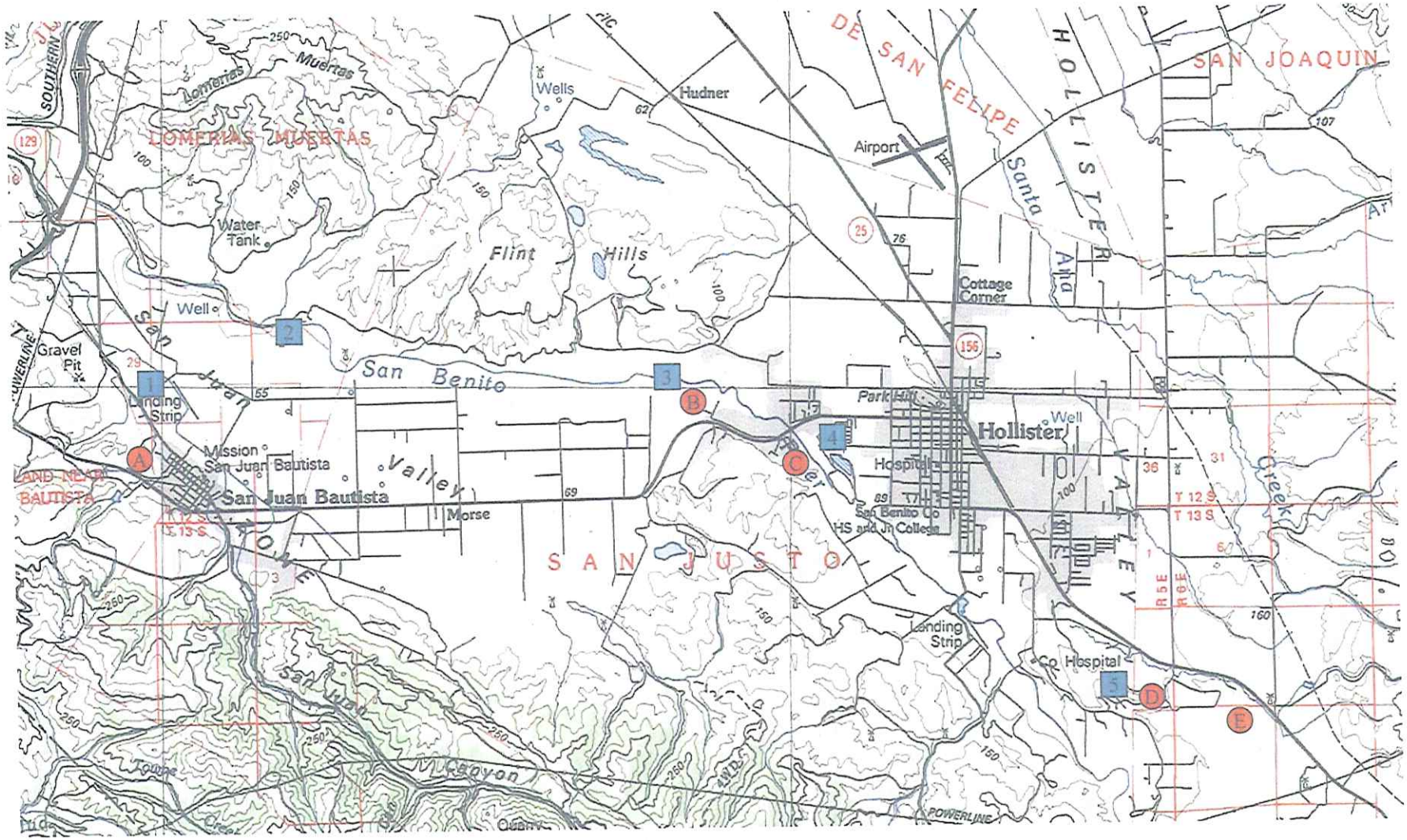
1) Degradation through biological or chemical treatment processes

2) Adsorption to particulate material and removal via waste sludge

3) Volatilization

4) Passage through plant in treated wastewater stream

San Benito County Sampling Program, Wastewater and Water Supply Well Testing

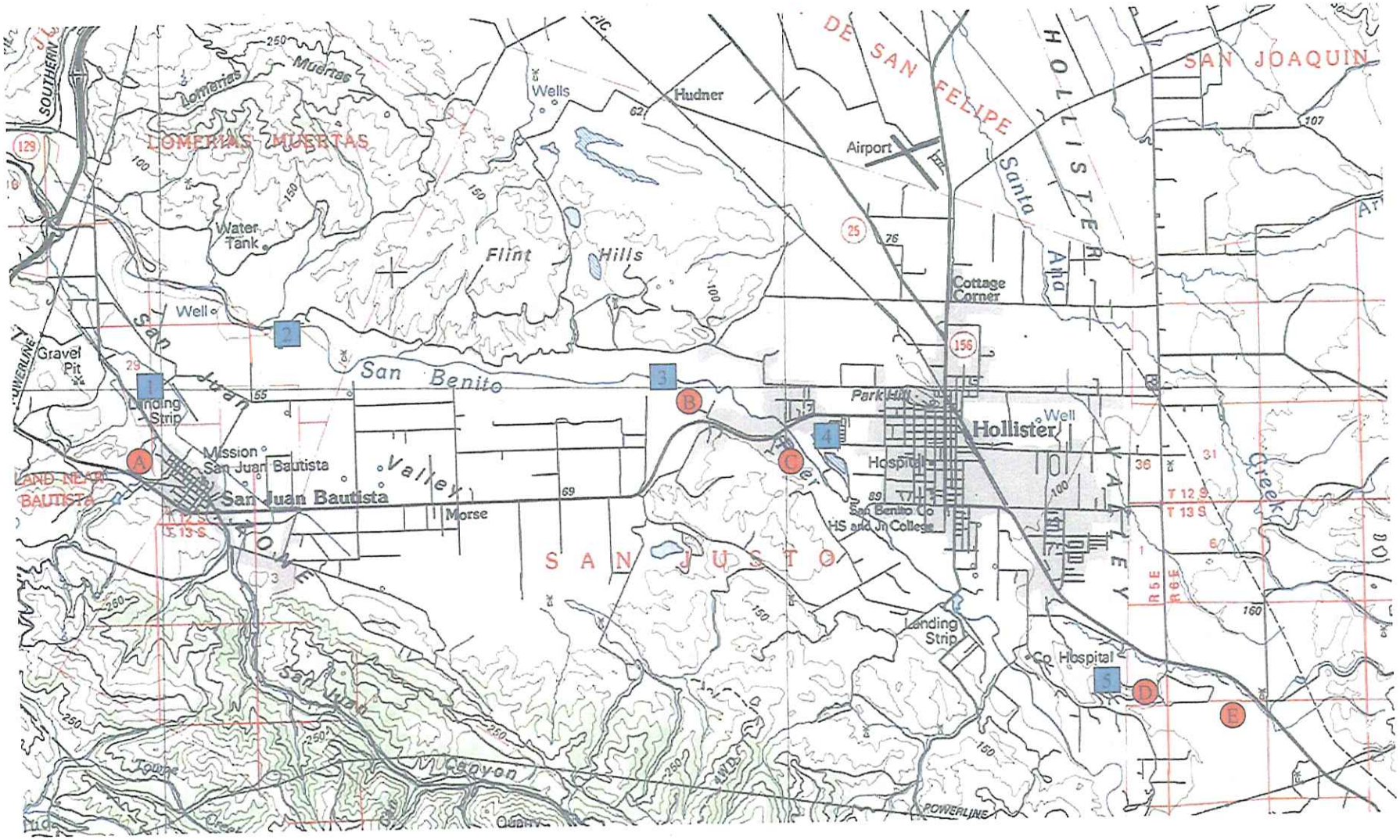


Wastewater Disposal Site Well

Site Descriptions

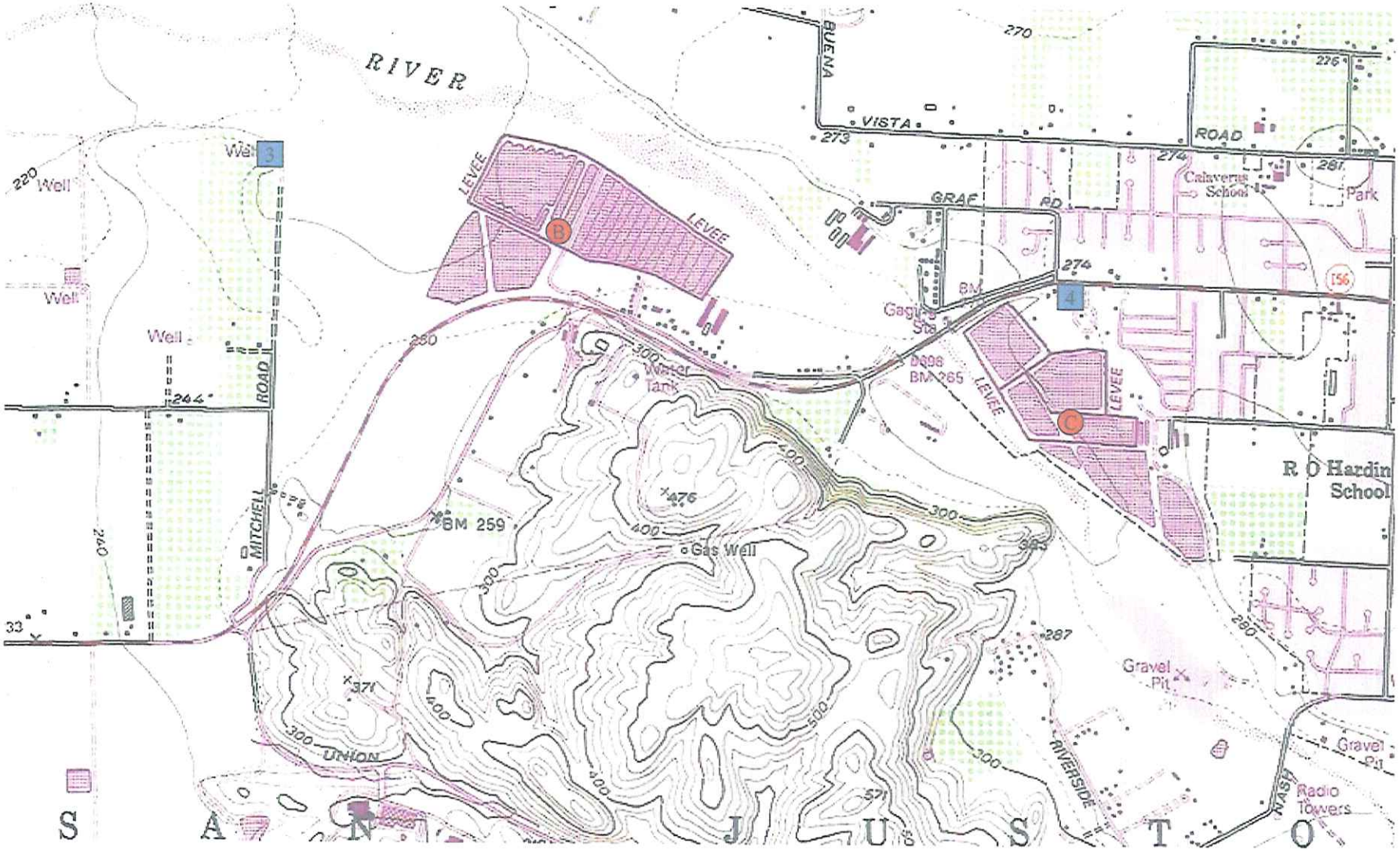
- A • San Juan Bautista Point of Discharge
- B • City of Hollister Domestic Ponds
- C • City of Hollister Industrial Ponds
- D • Sunnyslope Disposal Pond 1
- E • Sunnyslope Disposal Pond 2

San Benito County Sampling Program, Wastewater and Water Supply Well Testing

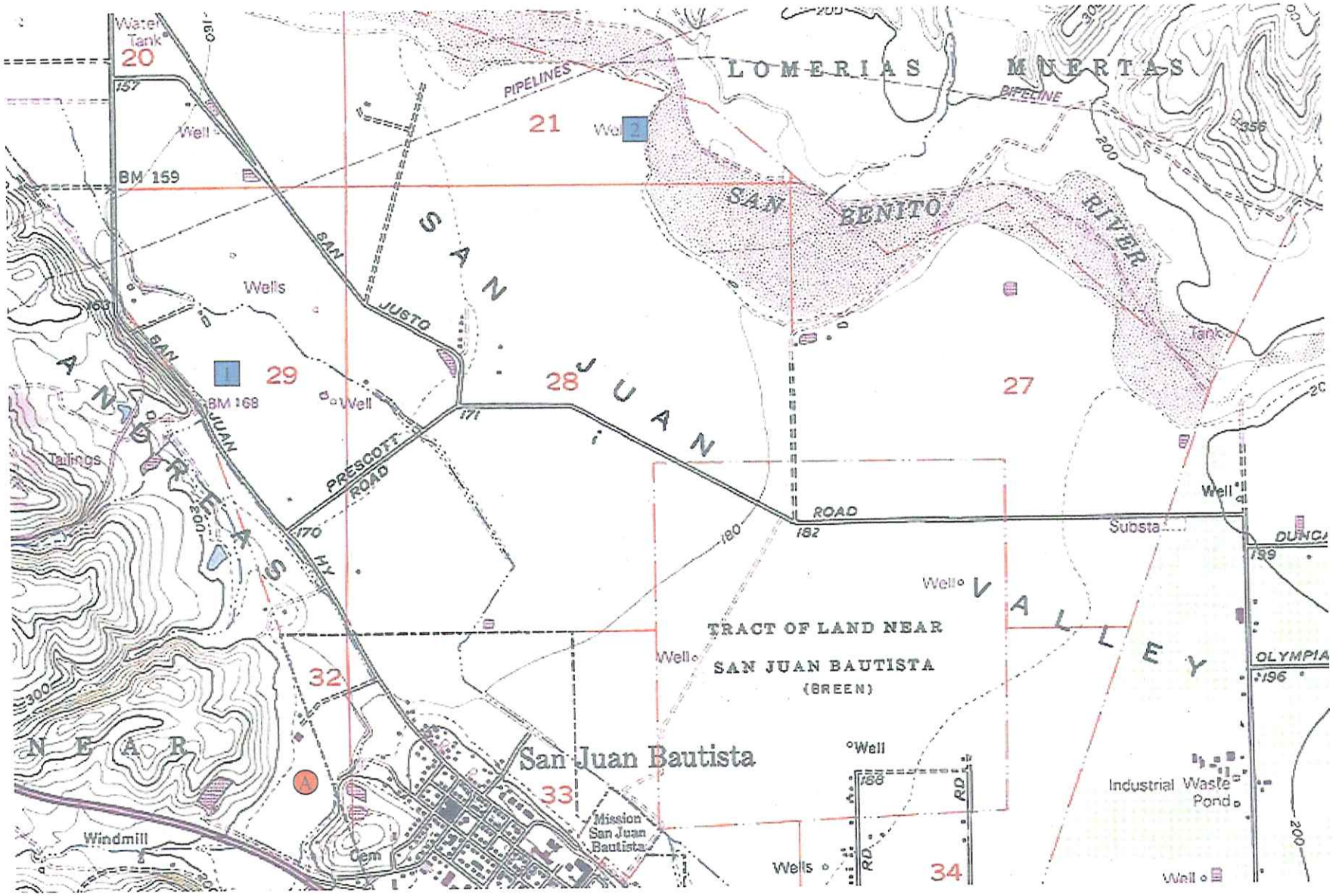


Wastewater Disposal Site Well

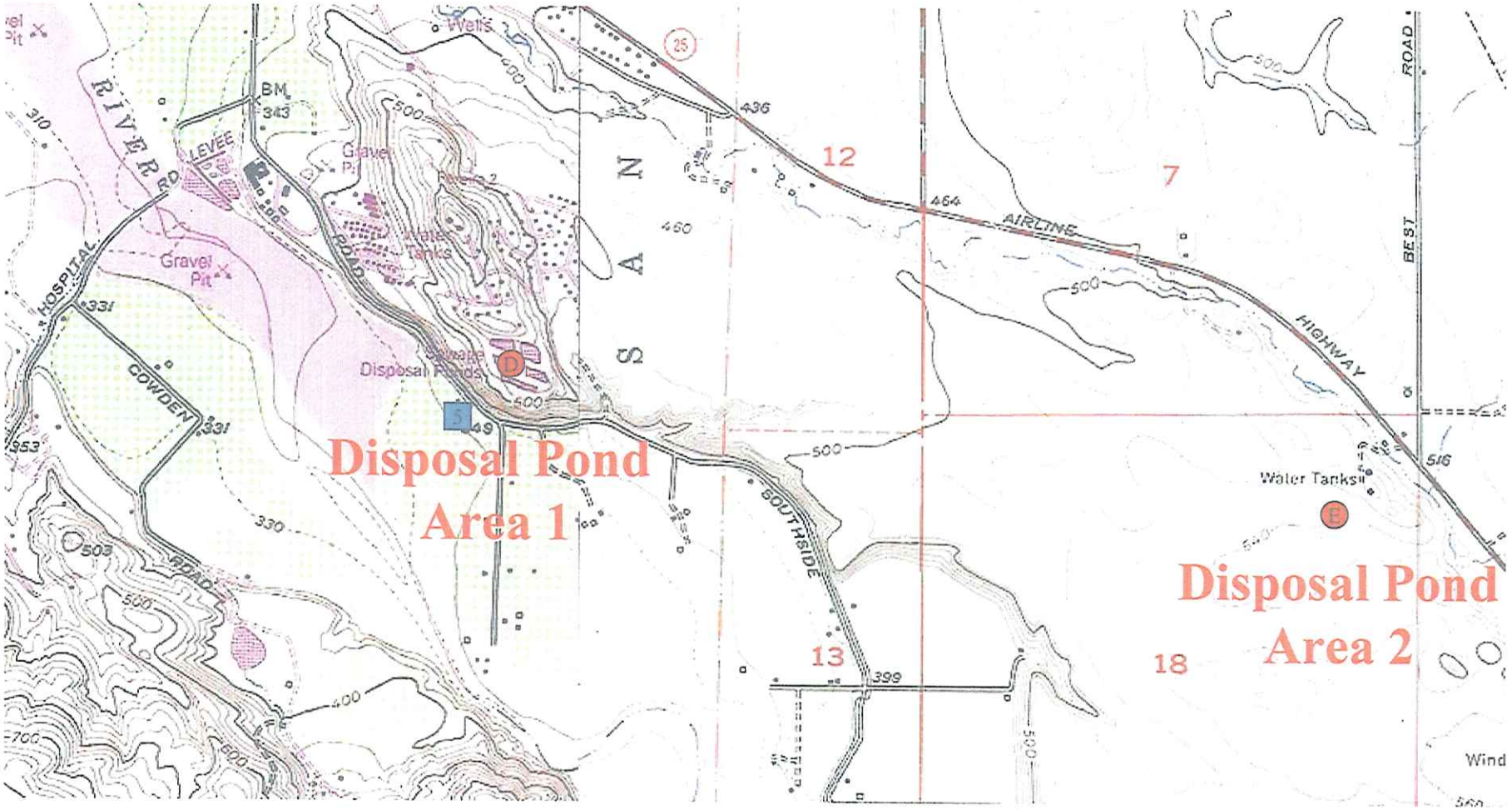
City of Hollister Disposal Ponds

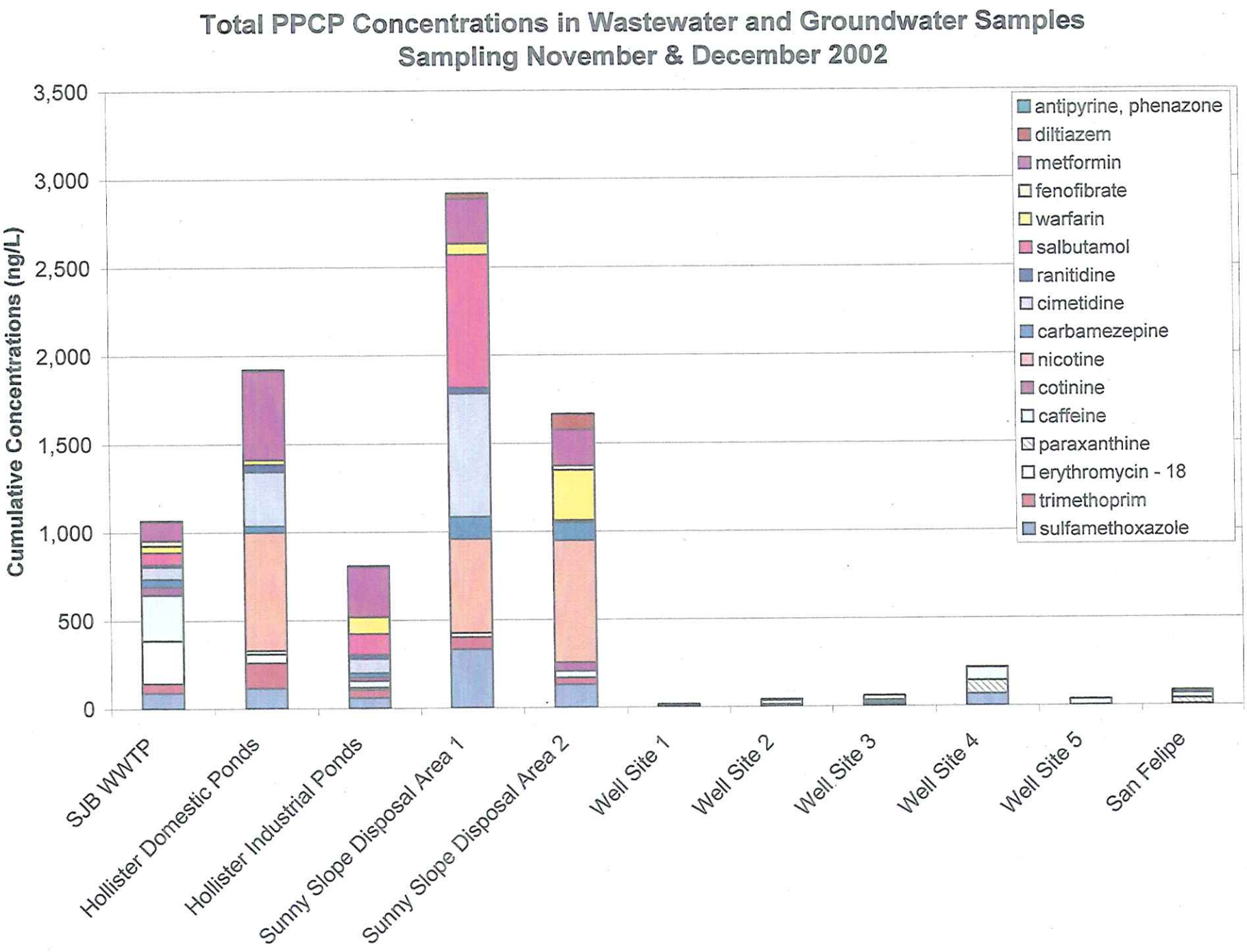


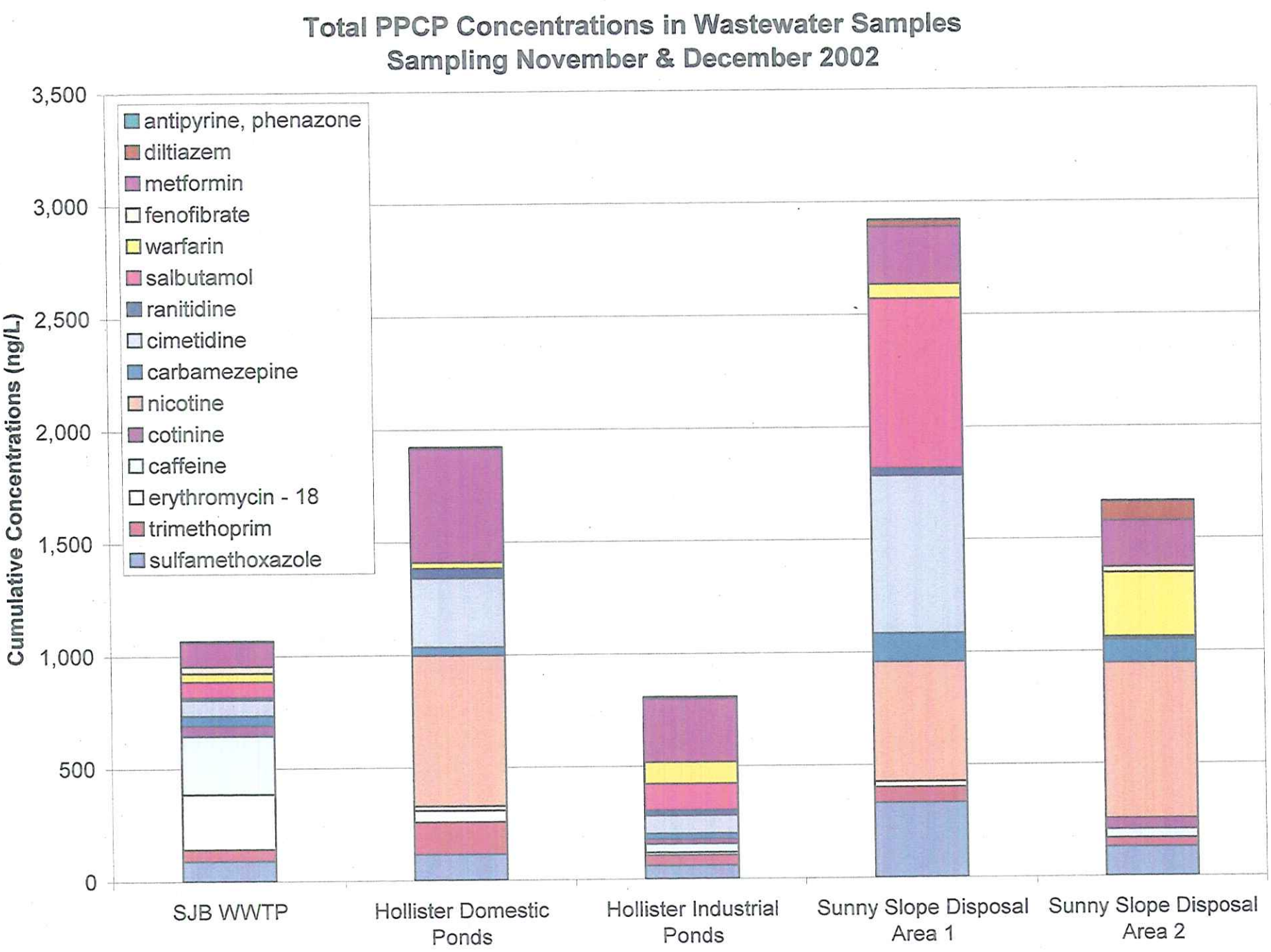
San Juan Bautista Point of Discharge

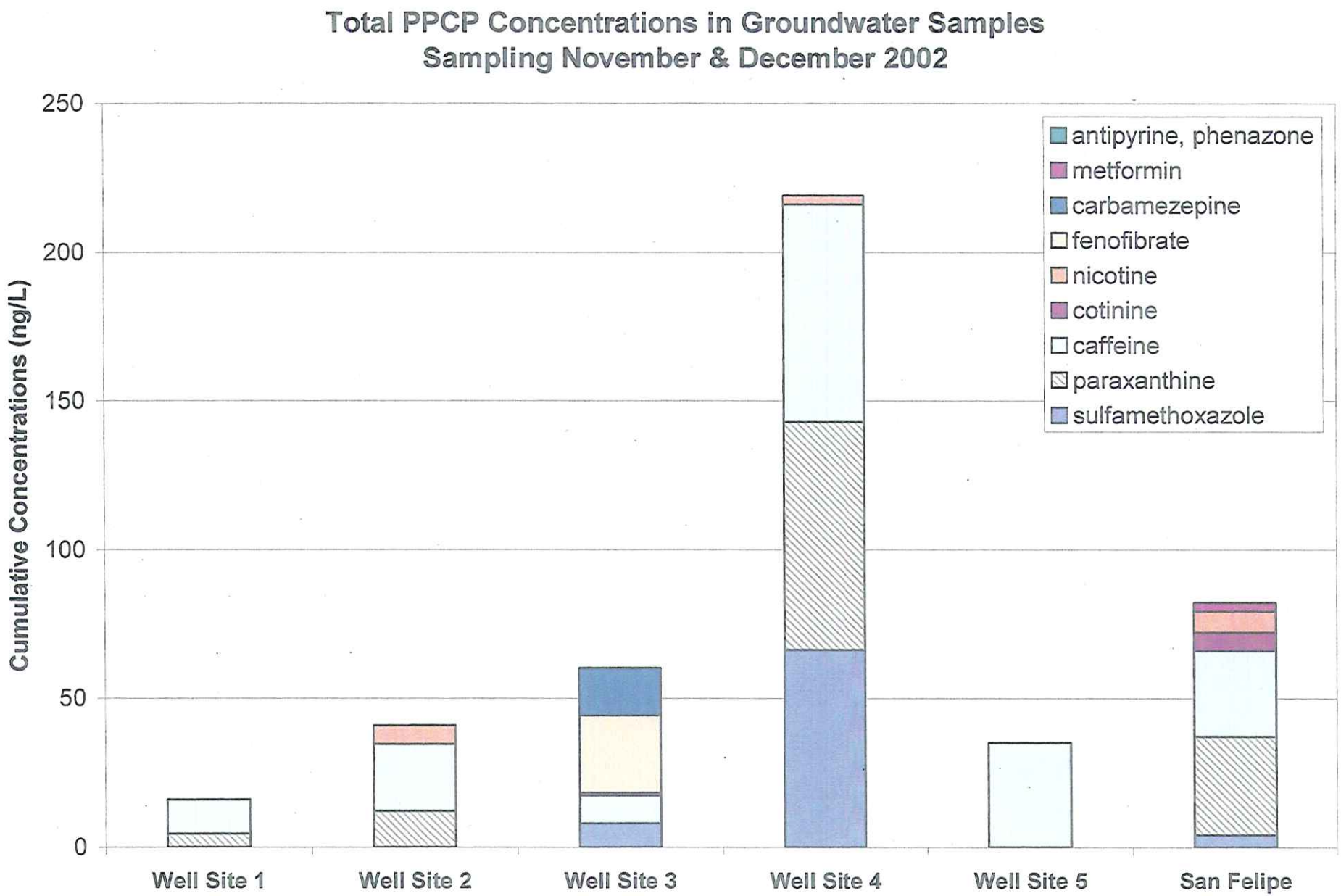


Sunnyslope Disposal Pond Areas

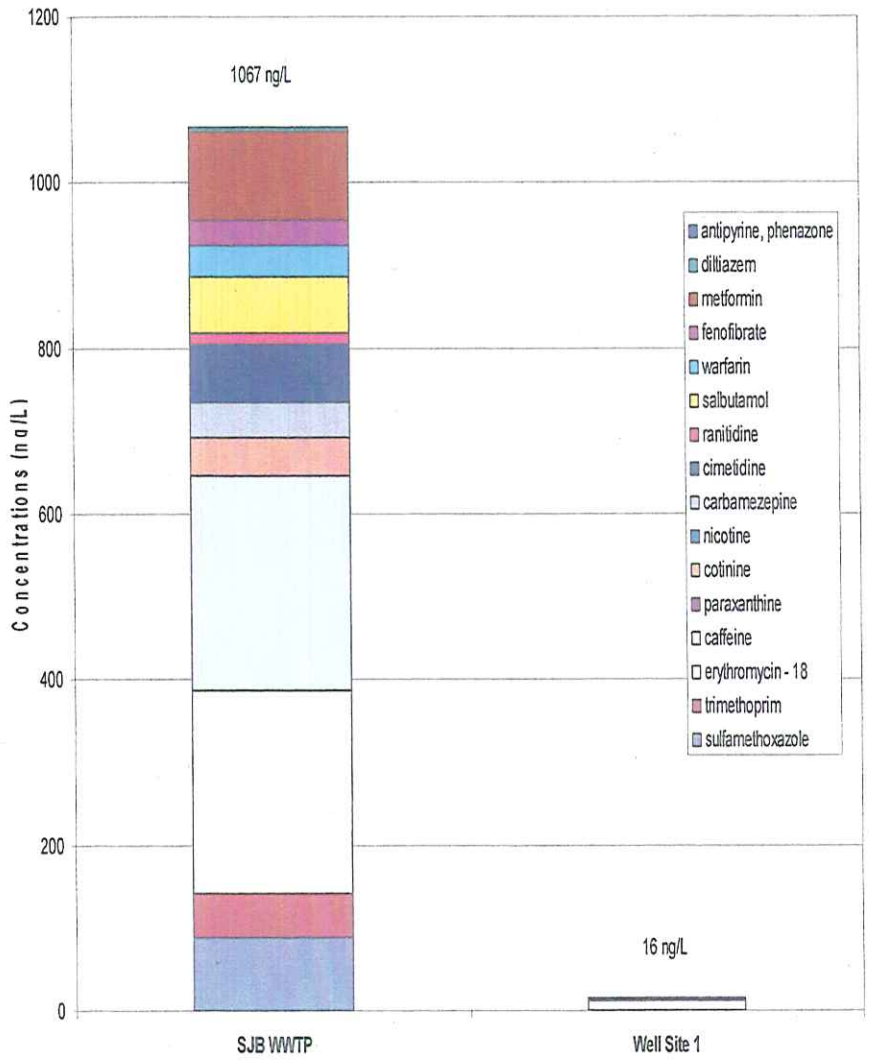


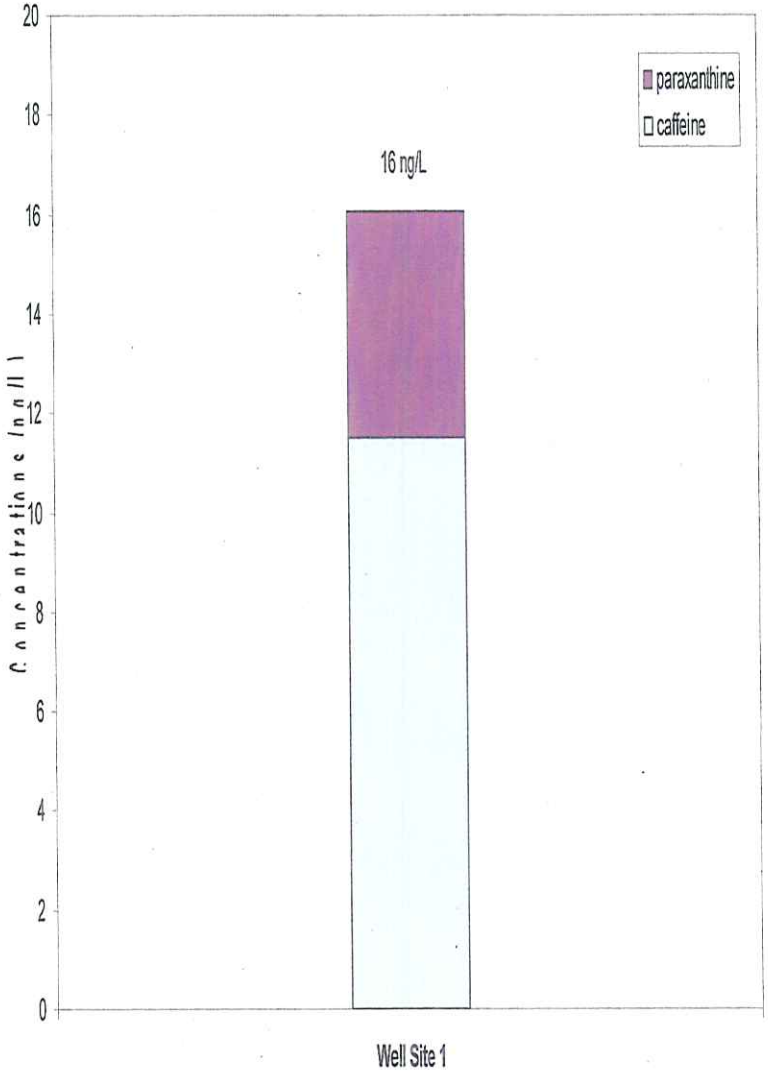

Total PPCP Concentrations in Wastewater and Groundwater Samples
Sampling November & December 2002
Cumulative Concentrations (ng/L)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
antipyrine, phenazone
diltiazem
metformin
fenofibrate
warfarin
salbutamol
ranitidine
cimetidine
carbamezepine
nicotine
cotinine
caffeine
paraxanthine
erythromycin - 18
trimethoprim
sulfamethoxazole
SJB WWTP
Hollister Domestic Ponds
Hollister Industrial Ponds
Sunny Slope Disposal Area 1
Sunny Slope Disposal Area 2
Well Site 1
Well Site 2
Well Site 3
Well Site 4
Well Site 5
San Felipe


Total PPCP Concentrations in Wastewater Samples
Sampling November & December 2002
Cumulative Concentrations (ng/L)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
antipyrine, phenazone
diltiazem
metformin
fenofibrate
warfarin
salbutamol
ranitidine
cimetidine
carbamezepine
nicotine
cotinine
caffeine
erythromycin - 18
trimethoprim
sulfamethoxazole
SJB WWTP
Hollister Domestic Ponds
Hollister Industrial Ponds
Sunny Slope Disposal Area 1
Sunny Slope Disposal Area 2

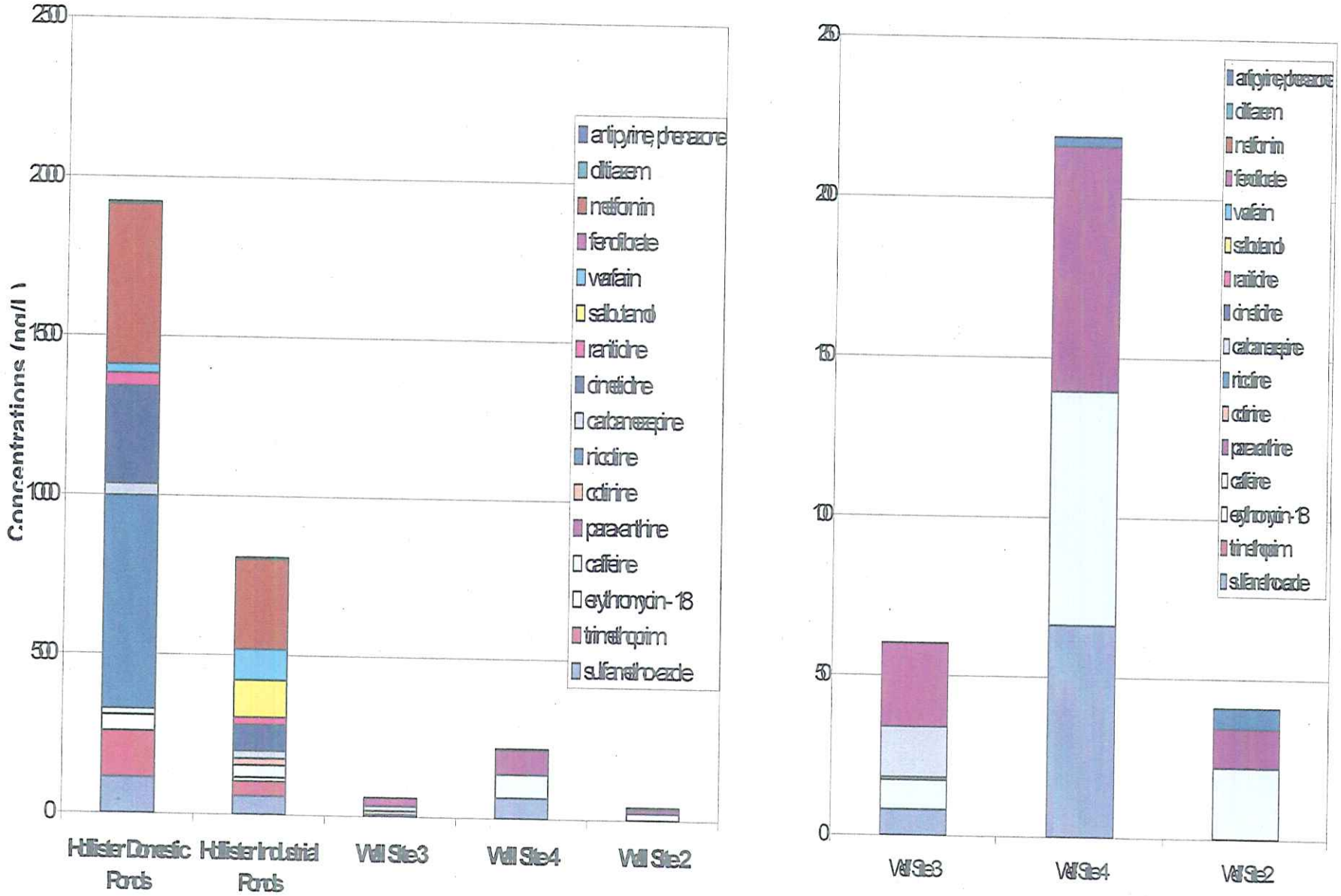

Total PPCP Concentrations in Groundwater Samples
Sampling November & December 2002
Cumulative Concentrations (ng/L)
250
200
150
100
50
0
antipyrine, phenazone
metformin
carbamezepine
fenofibrate
nicotine
cotinine
caffeine
paraxanthine
sulfamethoxazole
Well Site 1
Well Site 2
Well Site 3
Well Site 4
Well Site 5
San Felipe

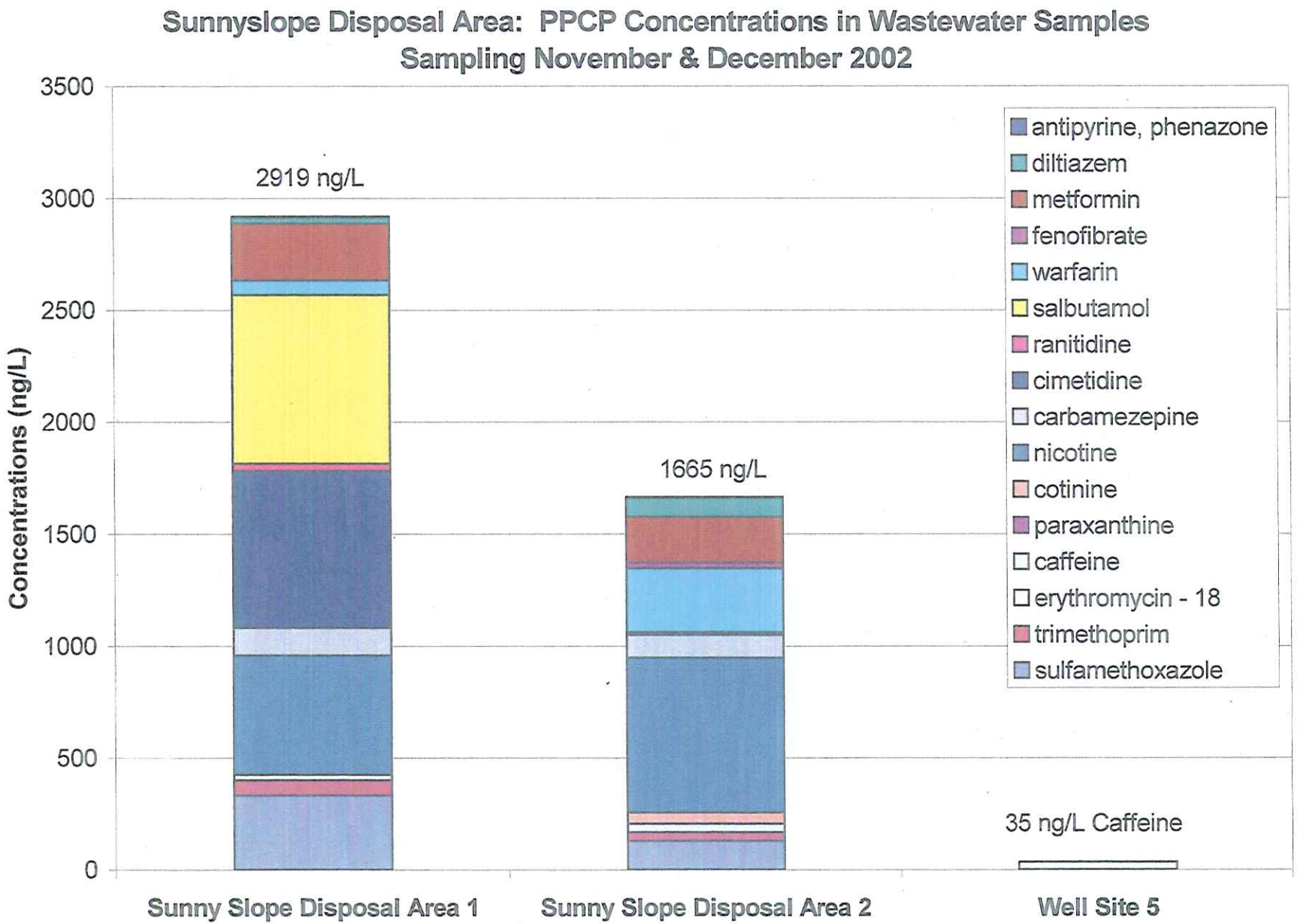
San Juan Bautista PPCP Concentrations

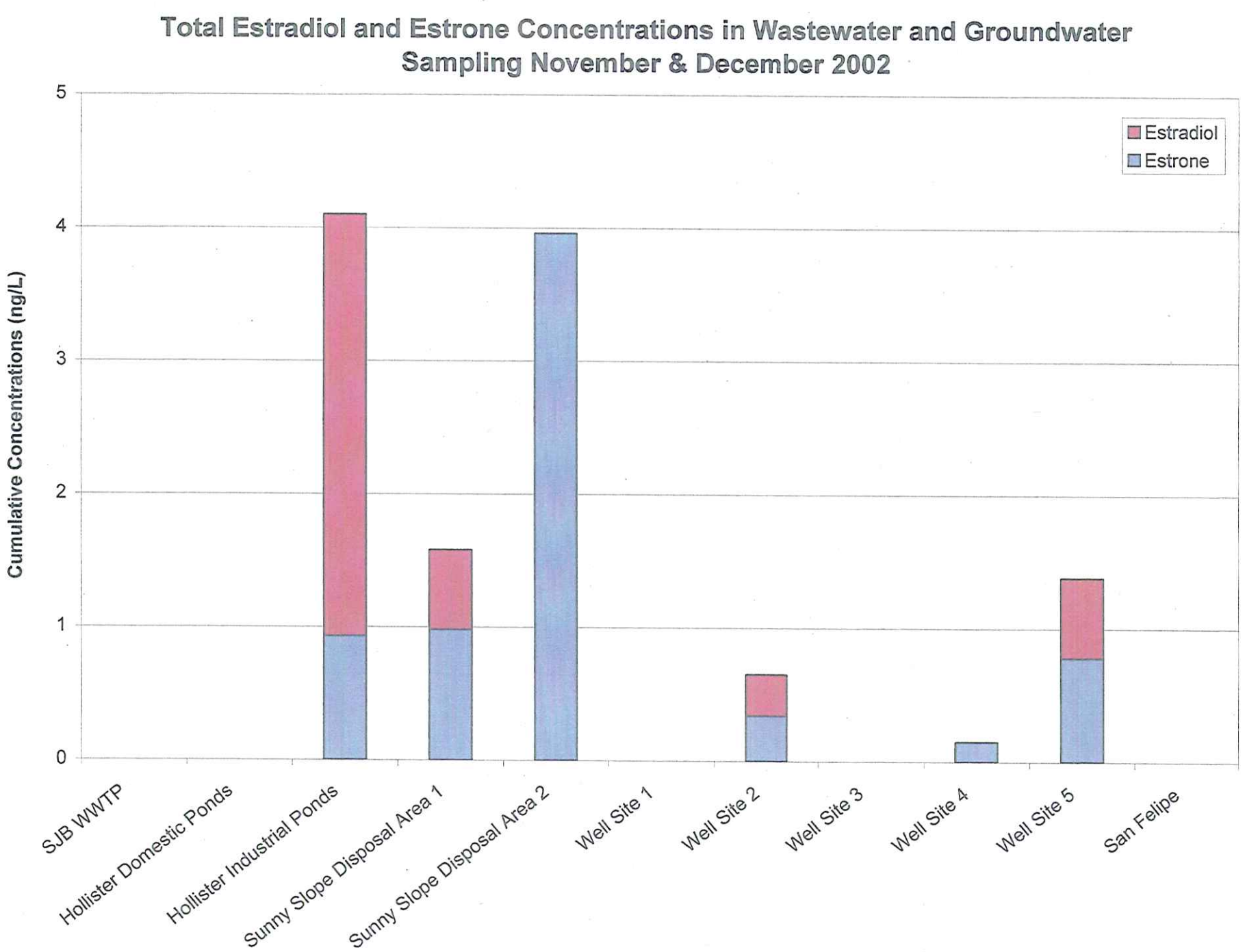


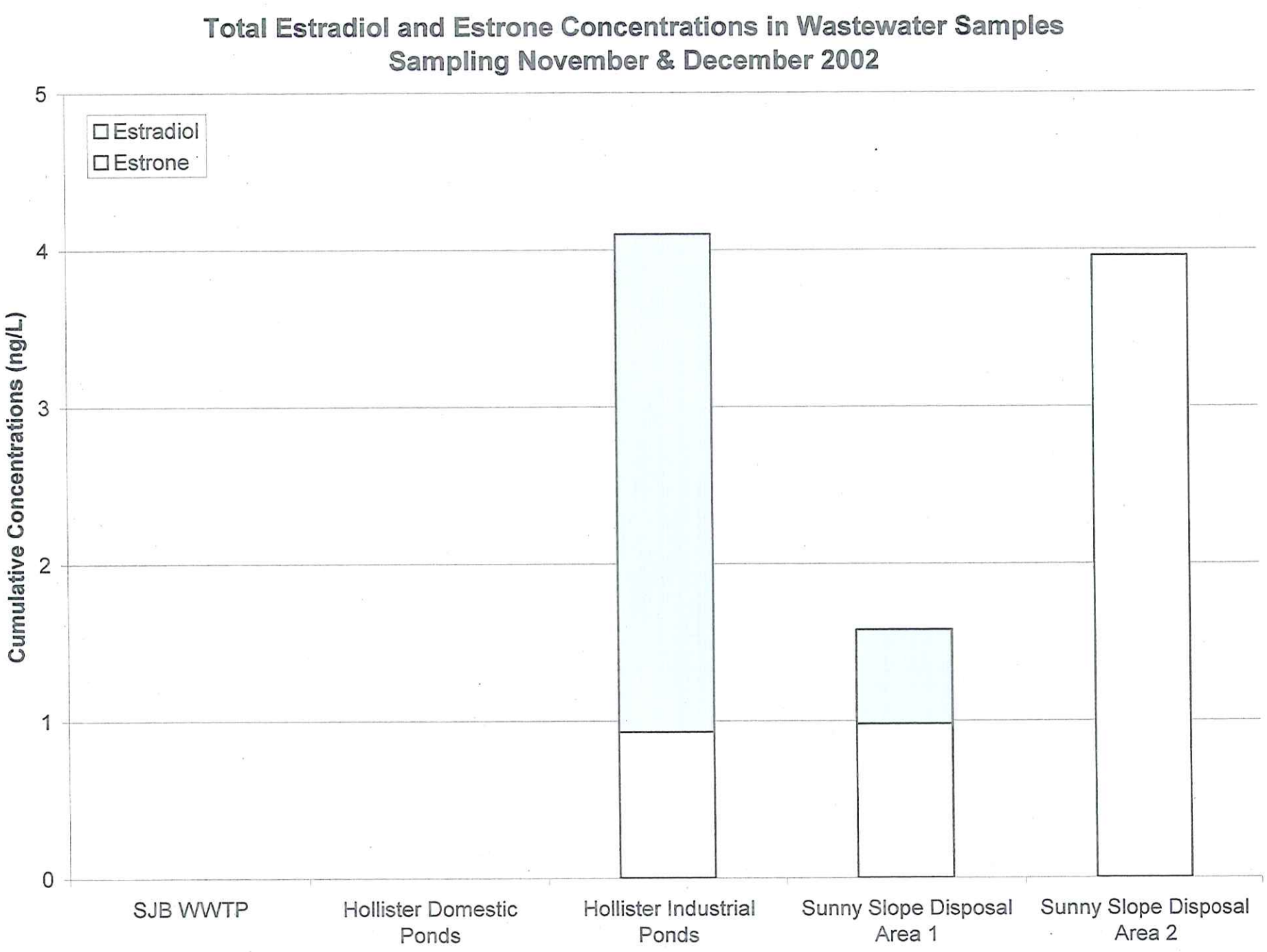


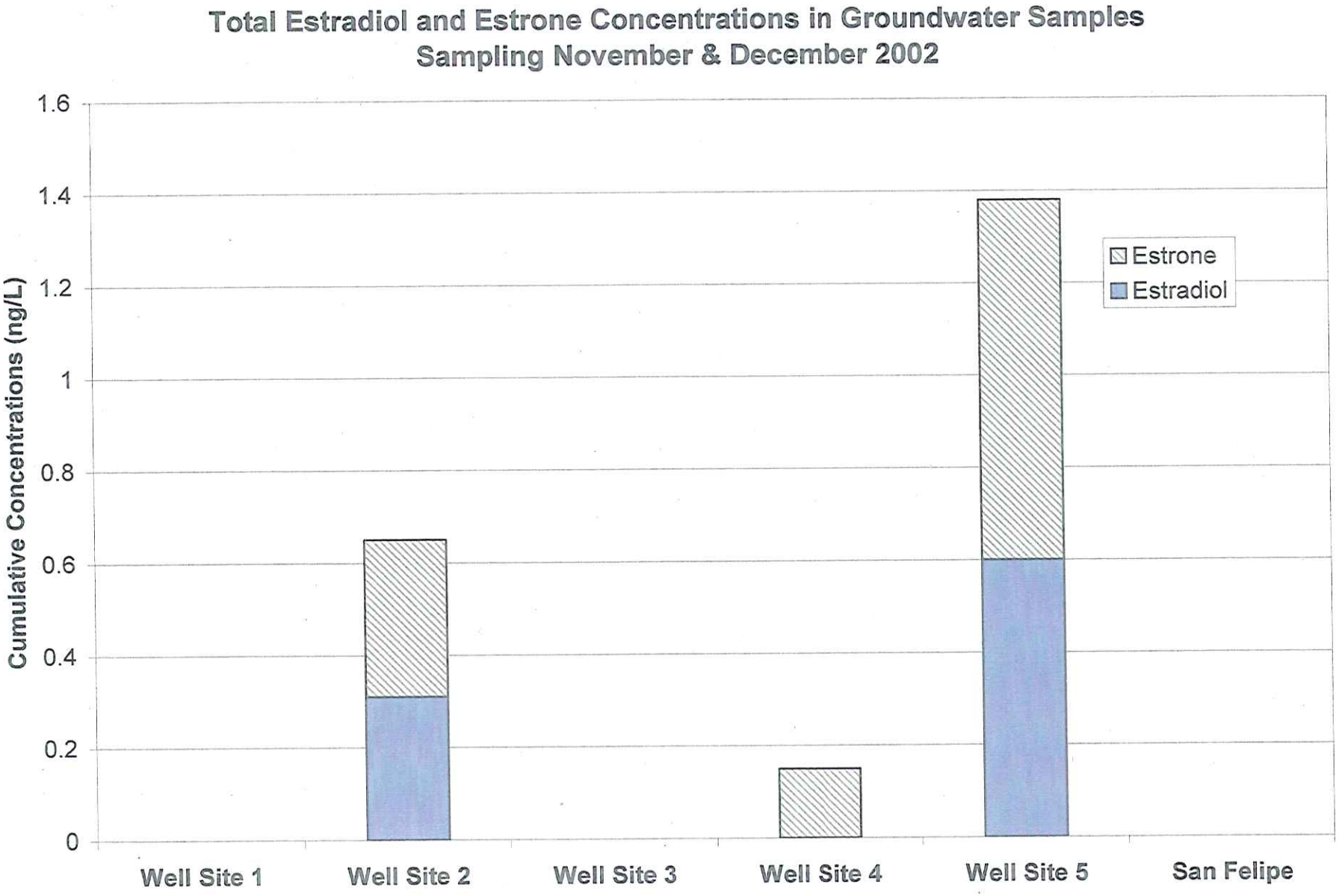
Hollister Disposal Pond PPCP Concentrations




Sunnyslope Disposal Area: PPCP Concentrations in Wastewater Samples
Sampling November & December 2002
Concentrations (ng/L)
3500
3000
2500
2000
1500
1000
500
0
2919 ng/L
1665 ng/L
35 ng/L Caffeine
antipyrine, phenazone
diltiazem
metformin
fenofibrate
warfarin
salbutamol
ranitidine
cimetidine
carbamezepine
nicotine
cotinine
paraxanthine
caffeine
erythromycin - 18
trimethoprim
sulfamethoxazole
Sunny Slope Disposal Area 1
Sunny Slope Disposal Area 2
Well Site 5


Total Estradiol and Estrone Concentrations in Wastewater and Groundwater
Sampling November & December 2002
Cumulative Concentrations (ng/L)
0
1
2
3
4
5
Estradiol
Estrone
SJB WWTP
Hollister Domestic Ponds
Hollister Industrial Ponds
Sunny Slope Disposal Area 1
Sunny Slope Disposal Area 2
Well Site 1
Well Site 2
Well Site 3
Well Site 4
Well Site 5
San Felipe


Total Estradiol and Estrone Concentrations in Wastewater Samples
Sampling November & December 2002
Estradiol
Estrone
Cumulative Concentrations (ng/L)
0
1
2
3
4
5
SJB WWTP
Hollister Domestic Ponds
Hollister Industrial Ponds
Sunny Slope Disposal Area 1
Sunny Slope Disposal Area 2


Total Estradiol and Estrone Concentrations in Groundwater Samples
Sampling November & December 2002
Cumulative Concentrations (ng/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Estrone
Estradiol
Well Site 1
Well Site 2
Well Site 3
Well Site 4
Well Site 5
San Felipe

(Kolpin et al., 2002)

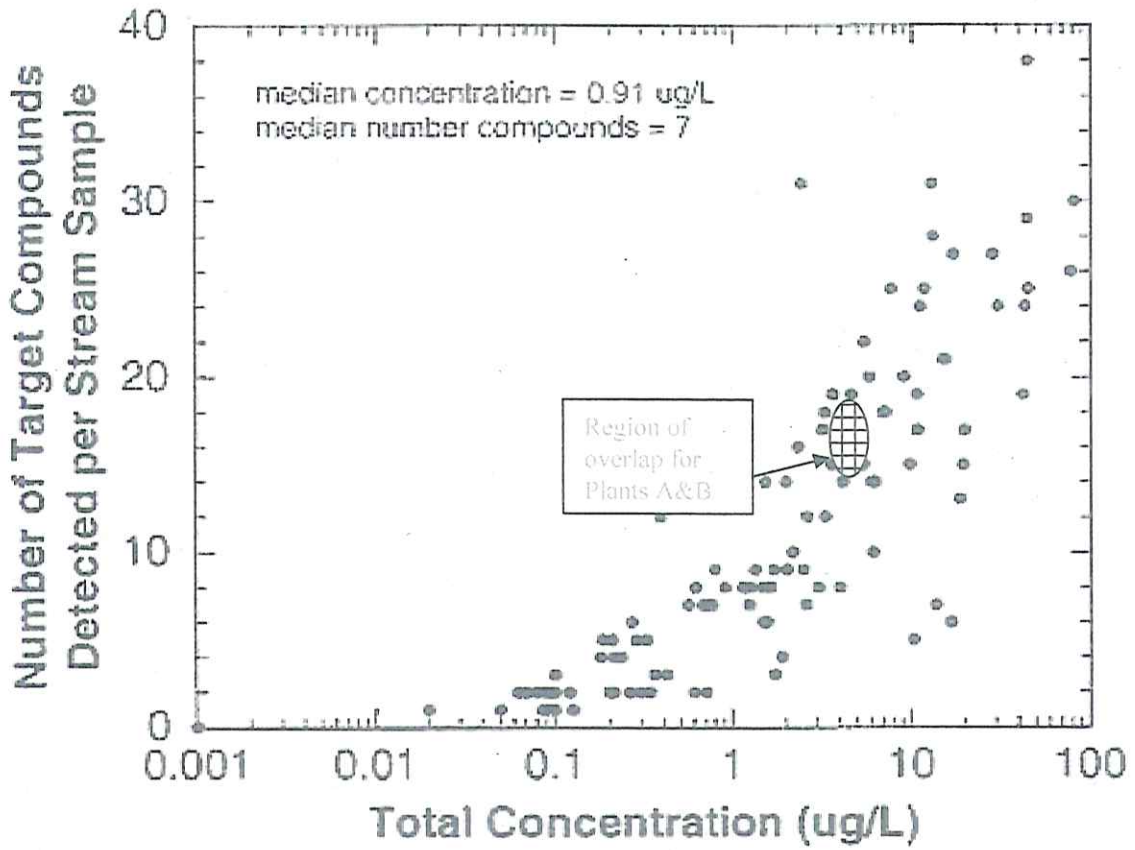


FIGURE 5. Relation between total concentration (summation from all detections) and number of organic wastewater contaminants found per water sample (Spearman's rank correlation coefficient = 0.94, $P < 0.001$).

What is the Regulatory Time Frame for PPCPs and EDCs?

- Not currently regulated by EPA or CDHS
- Posed for listing on EPA's Contaminant Candidate

Studies Report PPCPs Persist through Wastewater Treatment

1) Biological degradation: Low for carbamazepine, fenofibrate

2) Particulate Adsorption: Low due to high PPCP polarities

3) Volatilization: Low

4) Passage: High for carbamazepine, clofibric acid, diclofenac, gemfibrozil

Drinking Water Treatment: Can PPCPs and EDCs be Removed?

- **Reverse Osmosis Treatment**
  - Excellent, PPCPs below detection (Drewes et al., 2002)
- **Granular Activated Carbon**
  - Good to excellent (Snyder, Westerhoff, et al., 2002)
- **Ozone/Advanced Oxidation Products**
  - Fair to Good (Snyder, Westerhoff, et al., 2002)
- **UV Light**
  - Fair to Good (Snyder, Westerhoff, et al., 2002)
- **Chlorination**
  - Poor to Low (Snyder, Westerhoff, et al., 2002)

What Can We Do with this information?

- More sampling?
- Development of Baseline Well Sampling
- Repeat sampling at certain well head locations
- Evaluation of potential approaches to wellhead treatment

Appendix D

Biological Report (Revised)

LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

RIDGEMARK WASTEWATER TREATMENT AND RECYCLED WATER IMPROVEMENT PROJECT (SUNNYSLOPE COUNTY WATER DISTRICT) REVISED BIOTIC EVALUATION IN SUPPORT OF CEQA PLUS HOLLISTER, CALIFORNIA

Prepared by
LIVE OAK ASSOCIATES, INC.

Rick Hopkins, Ph.D., Principal/Senior Wildlife Ecologist
Michele Korpos, M.S. (Candidate), Senior Project Manager/Wildlife Ecologist
Mark Jennings, Ph.D., Senior Associate Ecologist and Herpetologist

Prepared for

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1885 The Alameda, Suite 204
San Jose, CA 95126

26 June 2009 PN 1181-02

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EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) completed an investigation of the biological resources associated with the Ridgemark Wastewater Treatment and Recycle Water Improvement Project proposed by the Sunnyslope County Water District, dated 17 October 2008. This current document updates that report to include a biotic analysis on an alternative route for the pipelines based on community response to the original plan and CEQA document. The majority of the work will occur at two existing wastewater treatment facilities, within portions of the golf course, and within roadways of the Ridgemark residential development, located at the southeastern portion of Hollister, California. The area of potential impact to biological resources is approximately 74.5 acres. LOA evaluated potential impacts to such resources resulting from the proposed project and new alternate route. This report represents the biological portion of the CEQA-plus Requirements for projects utilizing State Revolving Funds.

The project area consists mainly of an established, gated community of single family homes and a golf course. There are several small areas within the project area that support open lands vegetated predominately with non-native vegetation, and an un-named seasonal drainage. LOA determined that special status plant species are absent from the site. Therefore, impacts from the proposed water improvement project to special status plant species will be less-than-significant.

Although no special status animal species were observed directly, evidence of two state species of concern, burrowing owl (*Athene cunicularia*) and American badger (*Taxidea taxus*), was observed onsite in the vicinity of Pond 6 during the 2008 surveys. The vacated badger burrow was the only burrow of suitable size (> 4" diameter) for the burrowing owl observed throughout the project area. Impacts to habitat for the burrowing owl and American badger would be less-than-significant; however, impacts to individuals of these species could occur as a result of project implementation. Preconstruction surveys would be required for these species. Several other special status animal species may occur within the project boundaries, as well. A number of special status animal species may regularly pass through or over the site during migration or may infrequently forage or roost on or adjacent to the site. For these species, the project would result in a less-than-significant impact on foraging or roosting habitat, as similar habitat is regionally abundant.

The original alignment had the majority of the work involved with this project occurring at two existing wastewater treatment facilities and within roadways, and a small amount of the work will occur within mixing ponds of the golf course and within ruderal grasslands. The alternate alignment is designed to place pipelines mainly within the golf course, limiting the necessity to disturb neighborhood roads. The alternative alignment would also limit the amount of work that would be conducted in ruderal grasslands. California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), and western spadefoot (*Spea hammondii*) have all been documented in the northern portion of the golf course (in a roadside ditch on the south side of Highway 25) and in a mitigation pond at the terminus of Paullus Drive. None of these species, however, are expected to occur within the waters associated with the proposed project due to the presence of predacious fish, various chemicals used to treat the waters for algae control, intensive management of the golf course, and a matrix of roads, fences, and houses that occurs between the mitigation pond and waters of the potential impact area.

However, the golf course does support a number of active gopher burrows that could potentially serve as estivation habitat. Therefore, in addition to best management practices (e.g., erecting silt fencing at the boundaries of work within 0.25 miles of the mitigation pond), preconstruction surveys for special status herps should be conducted prior to ground disturbance to avoid potential harm to estivating individuals of these species should they occur onsite. The western pond turtle (*Actinemys marmorata*) has not been documented within the study area, though it is known to occur within 3 miles. It is possible that the turtle could occur within waters of the potential impact area from time to time, as these turtles are not adversely affected by predacious fish and they can tolerate a higher concentration of chemicals than amphibians. Therefore, preconstruction surveys should be conducted to determine their presence or absence. If they were found present prior to construction, appropriate measures would need to be taken to avoid harming individuals or nests of the species, thereby reducing impacts to a less-than-significant level.

Impacts to tree- and ground-nesting raptors could occur as a result of future ground disturbance activities or tree trimming/removal. Suitable nesting habitat for tree-nesting birds occurs throughout the project area in the many mature trees present. Fossorial mammal burrows of suitable size (> 4" diameter) for burrowing owls are generally lacking from the site. Nonetheless, pre-construction surveys would be required for special status bird species that occur on or within 250 feet of the project boundary. Implementation of proposed mitigation measures to ensure that future ground disturbance does not result in harm or injury to any of these species would reduce impacts to a less-than-significant level.

Jurisdictional waters are considered absent from the project site, as all of the waterways associated with the project are manmade features and are isolated from (i.e., do not drain to) any known tributary waters. Impacts to habitat for native wildlife and degradation of water quality in seasonal creeks, reservoirs, and downstream waters would be considered less-than-significant.

Due to the nature of this project, potential impacts to biological resources would be of a temporary nature. Therefore, the project is expected to result in less-than-significant impacts to these resources.

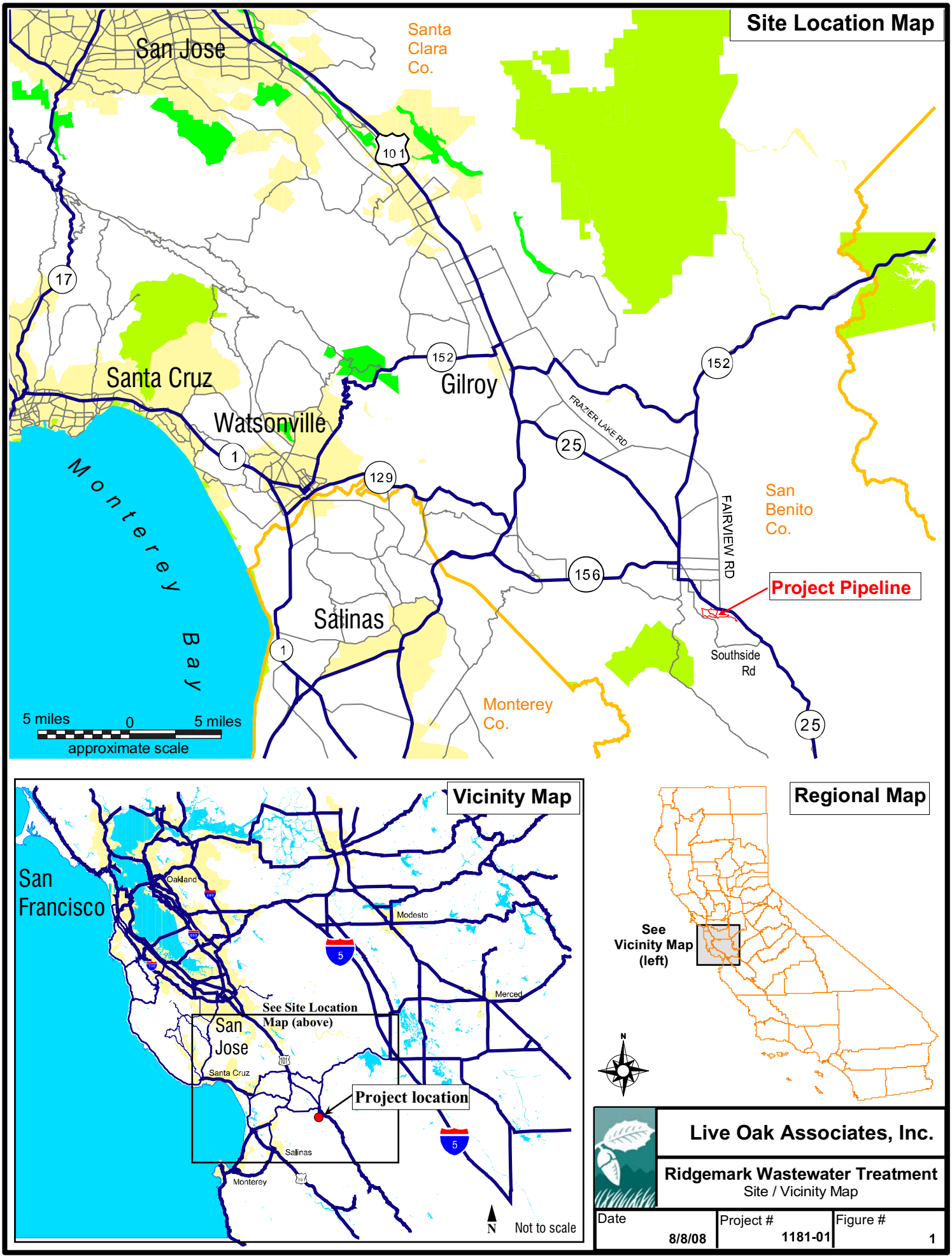
1 INTRODUCTION

Live Oak Associates, Inc. (LOA) has prepared the following report, which describes the biotic resources of an approximately 74.5 acre project impact area in Hollister, California, and evaluates likely impacts to these resources resulting from the proposed wastewater treatment and recycled water project. This acreage comprises the two existing wastewater treatment facilities, the preferred pipeline route (along Marks Drive and the eastern portion of Ridgemark Drive), three alternative routes (including a route designed as a response to comments from the local community), and the combined areas of other manmade waters that could be affected by the project. Collectively, this acreage is referred to as the "potential impact area" in this report. The "study area" refers to the greater Ridgemark development. The project site is located in the northern portion of San Benito County, within the easternmost portion of Hollister (Figure 1), in the Hollister and Tres Pinos 7.5" U.S. Geological Survey (USGS) quadrangles in the South ½ of Section 12, Township 13 South, Range 5 East; plus the South ½ of the South ½ of Section 7, Township 13 South, Range 6 East; plus the North ½ of the North ½ of Section 18, Township 13 South, Range 6 East.

Development projects can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA), and/or covered by policies and ordinances of Hollister. This report addresses issues related to: 1) sensitive biotic resources occurring on the study area; 2) the federal, state, and local laws regulating such resources, and 3) mitigation measures that may be required to reduce the magnitude of anticipated impacts. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources;
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range;
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development;
- Identify and discuss project impacts to biological resources likely to occur on the site within the context of CEQA or any state or federal laws; and
- Identify avoidance and mitigation measures that would reduce impacts to a less-than-significant level as identified by CEQA and that are generally consistent with recommendations of the resource agencies for affected biological resources.

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the site, discussed in Section 2.0. Sources of information used in the preparation of this analysis included: 1) the *California Natural Diversity Data Base* (CDFG 2008), 2) the *Inventory of Rare and Endangered Vascular Plants of California* (CNPS Online Inventory 2008), and 3) manuals and references related to plants and animals of the region. Reconnaissance-level field surveys of the study area were conducted on 24 March 2008 by LOA senior project manager and wildlife ecologist Michele Korpos, on 8 April 2008 by Ms. Korpos and Dr. Mark Jennings, LOA herpetologist, and on 28 May 2009 by Dr. Jennings, at which time


Site Location Map
San Jose
Santa Clara Co.
101
17
Santa Cruz
Watsonville
1
Monterey Bay
152
Gilroy
FRAZIER LAKE RD
25
129
156
Salinas
FAIRVIEW RD
San Benito Co.
Project Pipeline
Southside Rd
Monterey Co.
5 miles
0
5 miles
approximate scale
Vicinity Map
San Francisco
Oakland
Modesto
Merced
See Site Location Map (above)
San Jose
Santa Cruz
Project location
Salinas
Monterey
N
Not to scale
Regional Map
See Vicinity Map (left)
N
Live Oak Associates, Inc.
Ridgemark Wastewater Treatment
Site / Vicinity Map
Date
8/8/08
Project #
1181-01
Figure #
1

the principal biotic habitats and land uses of the site were identified, and the constituent plants and animals of each were noted.

The proposed project is the implementation of a wastewater system improvement project (Figures 2 below) to meet the long-term treatment and disposal needs of the Sunnyslope County Water District. The Sunnyslope County Water District proposes to comply with the RWQCB Waste Discharge Order through upgrade and construction of wastewater treatment facilities, as well as future salinity improvements to potable water supplies. The project would be implemented in phases, with wastewater treatment facility upgrades to reduce the levels of ammonia, nitrates, BOD, TSS, and pH and a recycled water distribution system discussed at a project-level in this EIR (Phase I).

The District is also considering several future measures to reduce the salinity of wastewater (specifically total dissolved solids (TDS), sodium, and chloride) treated at their Ridgemark I wastewater treatment facility (RM I). The project details of these measures are not known at this time, and therefore this project component will be analyzed at a program-level in the EIR (Phase II).

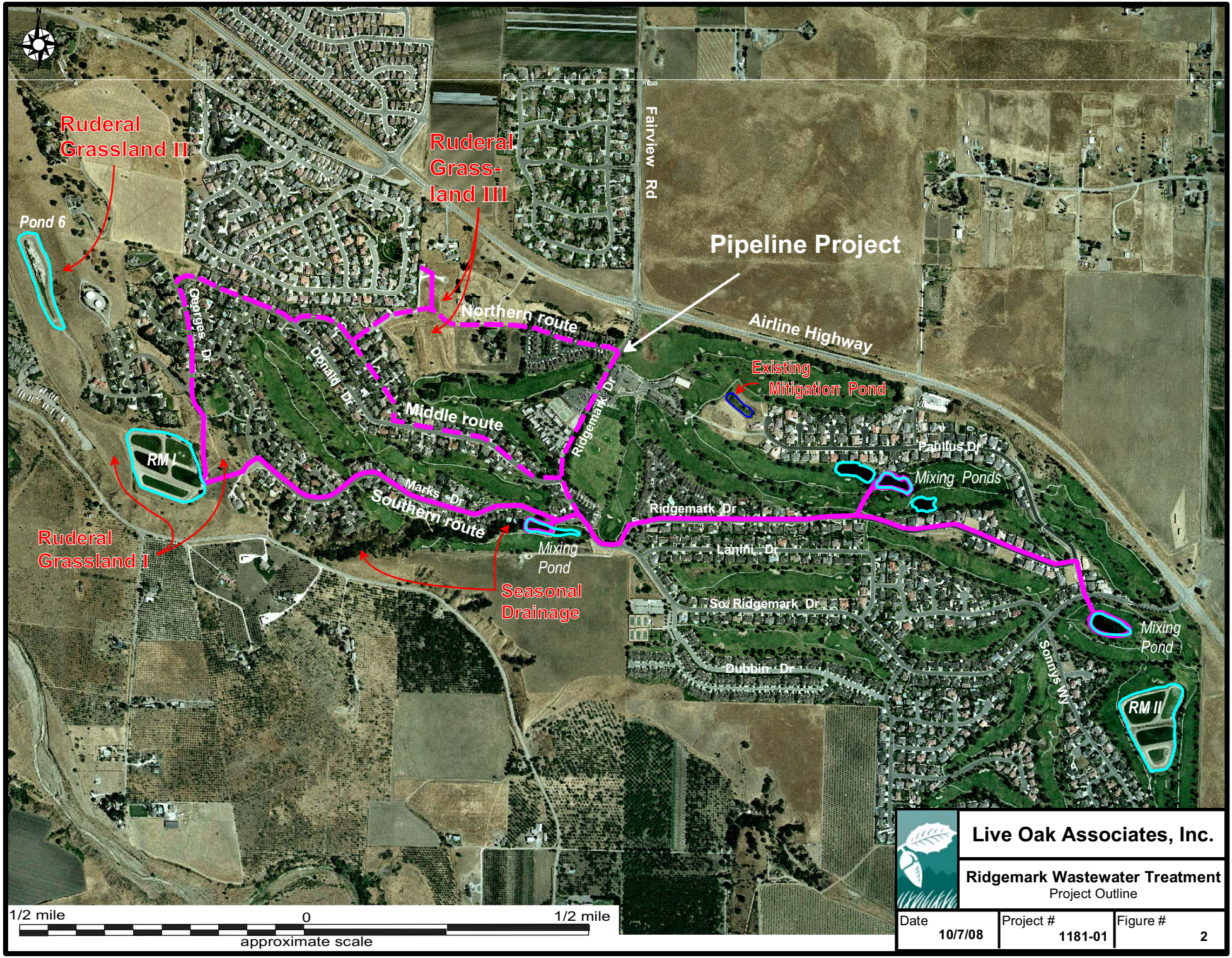
This report provides an overview of the impacts associated with components of the long-term wastewater treatment and recycled water improvement project; discusses potential project-level impacts of Phase I, offering mitigation measures that will be carried out depending on the chosen pipeline route; discusses potential impacts from Phase II; and speaks generally about mitigation measures of the program-level phase.

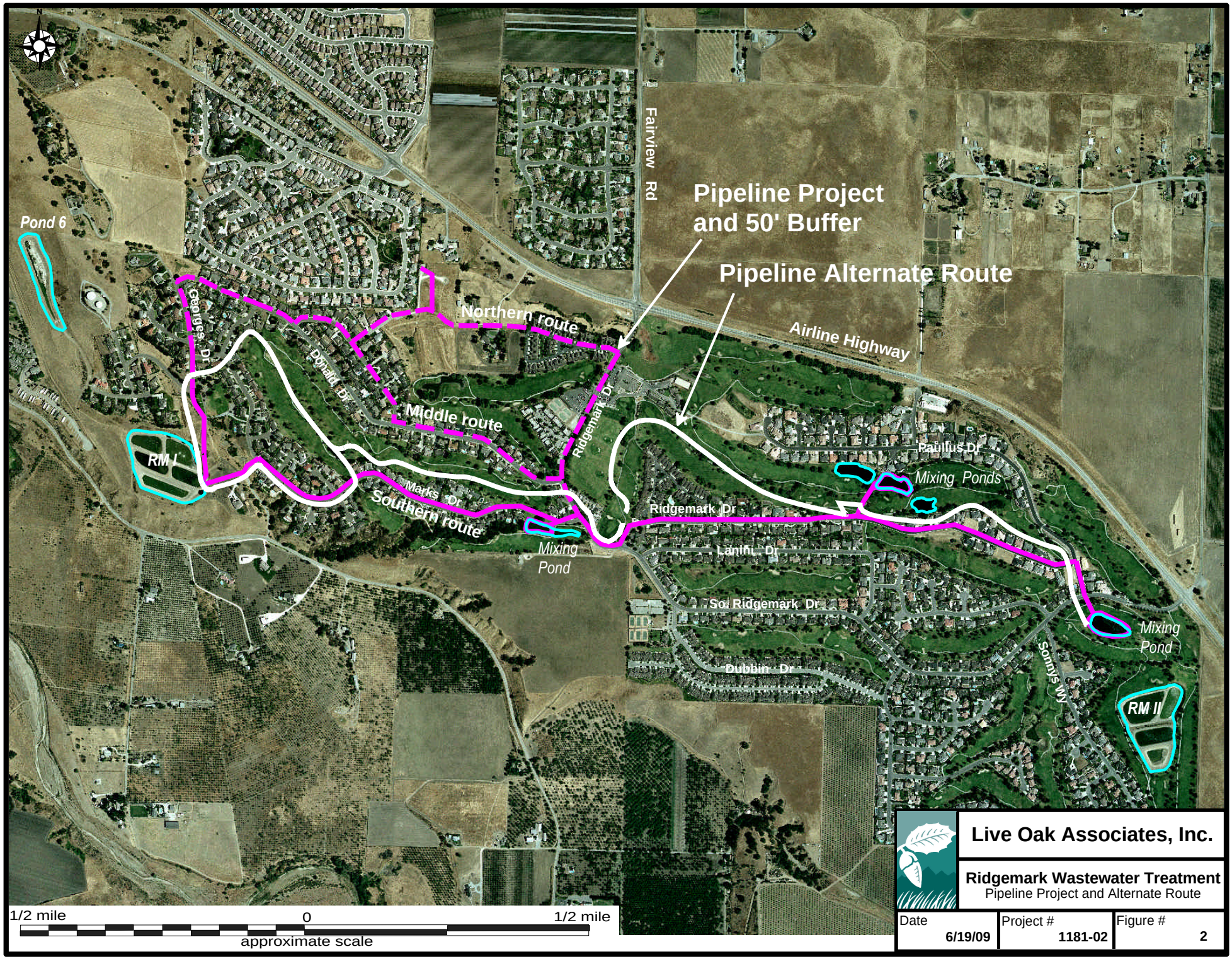
1.1 PROJECT DESCRIPTION

Phase I (*Project-level*): Ridgemark Wastewater Treatment and Recycled Water Improvements

Under the proposed project, flows from two existing wastewater treatment plants (RM I and RM II) would be combined and the treatment facilities upgraded to accommodate the combined flow and to meet regulatory wastewater treatment requirements. Most of the work would be within the existing boundaries of the RM I and RM II wastewater treatment facilities (ponds with aerators and various piping and pumps). Proposed improvements to wastewater facilities would include:

> **Phase I.a**: This phase includes installation of a Sequencing Batch Reactor (SBR) to provide secondary treatment at RM I, a transfer pump station at RM II, headworks, a solids handling facility, and upgrades to the main lift station. The improvements at the RM I treatment facility would be sized to treat wastewater flows from existing and planned growth within a defined SSCWD wastewater service area, south of Airline Highway. A new transfer pump station would be constructed to convey flows from RM II to RM I for treatment and a new pipeline would be constructed from the main lift station on Mark's Drive (below RM I) to RM I. Treated effluent would be disposed of in existing percolation ponds at RM I or RM II. If disposal ponds at RM II are used, a pipeline would be installed in existing streets to convey treated wastewater from RM I to RM II. This phase would also include removal of solids from several ponds at RM I as new facilities would be sited at these locations.


Ruderal Grassland II
Ruderal Grass-land III
Pond 6
Fairview Rd
Pipeline Project
Airline Highway
Northern route
Middle route
Southern route
Georges Dr
Donald Dr
Ridgemark Dr
Existing Mitigation Pond
Pabulus Dr
Mixing Ponds
RM I
Marks Dr
Ridgemark Dr
Lanini Dr
Mixing Pond
Ruderal Grassland I
Seasonal Drainage
So Ridgemark Dr
Mixing Pond
Dubbin Dr
Sonnys Wy
RM II
1/2 mile
0
1/2 mile
approximate scale
Live Oak Associates, Inc.
Ridgemark Wastewater Treatment
Project Outline
Date 10/7/08
Project # 1181-01
Figure # 2



Live Oak Associates, Inc.

Ridgemark Wastewater Treatment
Pipeline Project and Alternate Route

Date	Project #	Figure #
6/19/09	1181-02	2

Phase I.b: A treatment pond at RM I would be converted to a percolation/disposal pond. Some or all of the treatment and disposal ponds at RM II would be decommissioned. The treatment ponds would be dried out and solids that have accumulated at the bottom of the ponds would be removed and disposed of. Wastewater effluent would continue to be disposed of in percolation ponds following treatment.

The initial phase of the project also includes installation of pipelines and facilities that would allow for the use of recycled water from RM I. Proposed Phase I recycled water improvements would include:

Phase I.c: Disinfection treatment equipment would be installed at RM I, and recycled water lines would be installed beneath existing streets or along golf course paths to allow for distribution of recycled water from RM I to the Ridgemark Golf Course. The project would also include blending to reduce the salinity of recycled water to be used for irrigation. Recycled effluent water from RM I would be mixed with California Valley Project (CVP) water supplies or groundwater, and distributed through new recycled water pipelines to the golf course.

Phase II: (Program-Level) Salinity Management/Potable Water Supply Improvements

The project also foresees future implementation of water quality improvements of potable water supplies to reduce the salinity of wastewater effluent. The level of detail for these improvements is limited at this time and they will only be addressed at a program level in the EIR. In this case, the program level of analysis is included in the *Ridgemark Wastewater Treatment and Recycled Water Improvements Project* as it is part of a series of proposed actions that can be characterized as one large project for the purposes of the California Environmental Quality Act (refer to CEQA Guidelines Section 15168).

Improvements under Phase II could include demineralization and/or water softening of groundwater from wells, and would allow the District to deliver recycled water of a higher quality for irrigation. The time frame for these improvements would be approximately 2010 to 2040 and subsequent environmental review will be required for construction and operation of the Phase II potable water supply improvements.

Phase II improvements could include physical facilities, such as a new well, pump station and pipelines, water storage, water treatment process, drying beds and brine disposal. A water softener ordinance that limits use of traditional water softeners by water users may also be implemented. Ultimately, groundwater demineralization through reverse osmosis and blending of this water with groundwater could be employed. The method to be used for disposal of concentrate produced from water softening and/or demineralization is not currently known, but could include evaporation ponds, advanced concentration, deep well injection, land fill or outfall disposal.

As noted above, the specific components and location of Phase II improvements are not known at this time and subsequent environmental review will be required prior to approval or implementation. Improvements are likely to be proposed within or near the Ridgemark residential development. At this time, CEQA Plus Funds are not currently being requested for potable water supply improvements.

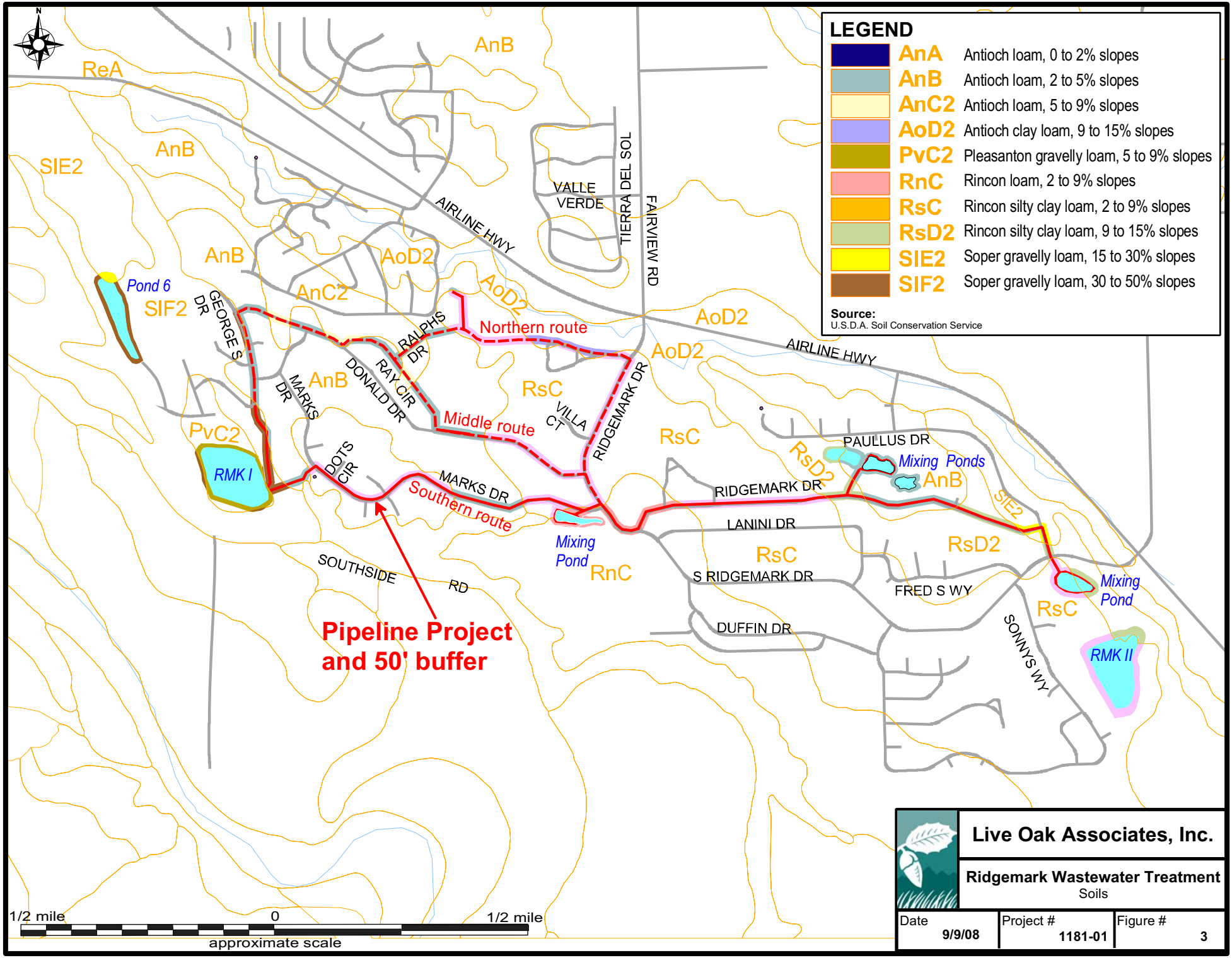
2 EXISTING CONDITIONS

The Ridgemark Waste Water Treatment and Recycled Water Improvement Project will be conducted within the Ridgemark residential development, located in the southeast corner of Hollister and on the south side of Highway 25. The Ridgemark development is a gated community consisting of single family homes situated around an 36-hole golf course. Many of the streets in the development are tree-lined, and planted with a variety of species including (but not limited to) Peruvian pepper trees (*Schinus molle*) and various pines (*Pinus* sp.). The Ridgemark development is generally surrounded by agricultural lands with residential development to the northwest. Topographically, the project area ranges in elevation from approximately 420 feet National Geodetic Vertical Datum (NGVD) at the low point of Ralphs Drive to approximately 600 feet NGVD at Pond 6. Surrounding land uses include moderate density residential development, rural residential development, and agriculture.

Ten soil types from four soil series – Antioch, Pleasanton, Rincon, and Soper – were identified within the potential impact area (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx 2008) (Figure 2). The Antioch series consists of moderately well to somewhat poorly drained soils derived from a wide range of sedimentary rocks, formed in alluvium. The Pleasanton series consists of well-drained loamy and gravelly loamy soils underlain by stratified alluvium; its terraces or fans of alluvium are derived from sandstone and shale. The Rincon series consist of deep, well-drained soils that formed in alluvium from sedimentary rocks. The San Benito series consists of well-drained soils that formed in residuum weathered from shale and sandstone with strongly sloping to very steep slopes. None of these soil series are considered hydric.

TABLE 1. SOILS OF THE STUDY SITE (Source: USDA NRCS Web Soil Survey)

Soil Series/Soil	Map Unit Symbol	Parent Material	Drainage Class	Runoff	Surface Permeability	Hydric % Composition
ANTIOCH SERIES Antioch loam 0-2% slope	AnA	Alluvium from mixed sources	Moderately well-drained	Very slow	Very slow	No
Antioch loam, 2-5% slope	AnB	Alluvium from mixed sources	Moderately well-drained	Slow	Very Slow	No
Antioch loam, 5-9% slope	AnC2	Alluvium from mixed sources	Moderately well-drained	Medium	Very Slow	No
Antioch clay loam, 9-15% slope	AoD2	Alluvium from mixed sources	Moderately well-drained	Medium – Rapid	Very Slow	No
PLEASANTON SERIES Pleasanton gravelly loam 5-9% slope	PvC2	Alluvium from sandstone and shale	Well-drained	Medium	Moderately slow	No
RINCON SERIES Rincon loam, 2-9% slope	RnC	Alluvium from sandstone and shale	Well-drained	Slow - Medium	Slow	No
Rincon silty clay loam, 2-9% slope	RsC	Alluvium from sandstone and shale	Well-drained	Slow-Medium	Slow	No
Rincon silty clay loam, 9-15% slope	RsD2	Alluvium from sandstone and shale	Well-drained	Medium – Rapid	Slow	No
SOPER SERIES Soper gravelly loam, 15-30% slope	SIE2	Loam underlain by stratified, semi-consolidated sand and gravel	Well-drained	Rapid	Moderately slow	No


LEGEND
AnA Antioch loam, 0 to 2% slopes
AnB Antioch loam, 2 to 5% slopes
AnC2 Antioch loam, 5 to 9% slopes
AoD2 Antioch clay loam, 9 to 15% slopes
PvC2 Pleasanton gravelly loam, 5 to 9% slopes
RnC Rincon loam, 2 to 9% slopes
RsC Rincon silty clay loam, 2 to 9% slopes
RsD2 Rincon silty clay loam, 9 to 15% slopes
SIE2 Soper gravelly loam, 15 to 30% slopes
SIF2 Soper gravelly loam, 30 to 50% slopes
Source:
U.S.D.A. Soil Conservation Service
Northern route
Middle route
Southern route
Pipeline Project
and 50' buffer
Pond 6
RMK I
RMK II
Mixing Ponds
Mixing Pond
AIRLINE HWY
VALLE VERDE
TIERRA DEL SOL
FAIRVIEW RD
GEORGE S DR
RALPHS DR
RAY CIR
DONALD DR
MARKS DR
DOTS CIR
VILLA CT
RIDGEMARK DR
PAULLUS DR
LANINI DR
S RIDGEMARK DR
FRED S WY
DUFFIN DR
SONNYS WY
SOUTHSIDE RD
1/2 mile
0
1/2 mile
approximate scale
Live Oak Associates, Inc.
Ridgemark Wastewater Treatment
Soils
Date 9/9/08
Project # 1181-01
Figure # 3

San Benito County has a Mediterranean climate with warm to hot dry summers and cool winters. Annual precipitation in the general vicinity of the site averages 13.5 inches, most of which falls between November and April. Nearly all precipitation falls in the form of rain. Stormwater runoff readily infiltrates the site's soils, and when field capacity has been reached, gravitational water flows into storm drains, detention basins, and off the site into roadside ditches along Highway 25.

2.1 BIOTIC HABITATS

Three biotic habitats occur within the study area. These habitats have been named pursuant to Sawyer and Keeler-Wolf (1995) and Holland (1986), where possible. For the purposes of this report, the habitats have been identified as ruderal non-native grassland, manmade ponds and seasonal drainage/riparian.

The majority of the site consists of wastewater treatment facilities and a residential development that supports a golf course; even so, the study area supports a moderate value for wildlife. A list of the vascular plant species observed within the study area during the March and April 2008 field surveys and the terrestrial vertebrates using, or potentially using, the study area are provided in Appendices A and B, respectively.

2.1.1 Ruderal Non-Native Grassland

There are several areas within the Ridgemark development and around treatment/evaporation ponds that support undeveloped land consisting of ruderal non-native grasslands. These areas are depicted in Figure 2. Ruderal Grassland I occurs around RMI, Ruderal Grassland II occurs around Pond 6, and Ruderal Grassland III occurs in the center of the northern route (pipeline alternative route).

Common grasses and forbs observed throughout the ruderal areas of the project area include, but are not limited to, soft chess (*Bromus hordeaceus*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), black mustard (*Brassica nigra*), alkali mallow (*Malvella leprosa*), broad leaf filaree (*Erodium botrys*), slender wild oat (*Avena barbata*), lupine (*Lupinus* sp.), ice plant (*Mesembryanthemum crystallinum*), coyote bush (*Baccharis pilularis*), prickly lettuce (*Lactuca serriola*), and field bindweed (*Convolvulus arvensis*).

Non-native grasslands can provide important habitat to many terrestrial vertebrates. As many as 25 species of reptiles and amphibians, 100 species of birds, and 50 species of mammals are known to use grassland habitats of central California (Mayer and Laudenslayer 1988). A number of these species are expected to utilize grasslands occurring on the site throughout all or part of the year as breeding and/or foraging habitat. However, a particular habitat's importance to the wildlife of a region can be affected by many factors including the proximity of suitable nesting sites, the amount of available escape cover, the availability of water and food, as well as the amount of human disturbance. The ruderal grasslands of the study area offer moderate value to wildlife in the area.

Reptilian species, such as the western fence lizard (*Sceloporus occidentalis*) observed onsite, southern alligator lizard (*Elgaria multicarinata*), gopher snake (*Pituophis catenifer catenifer*), common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalus viridis*) may or do

occur within the undeveloped grasslands. They would forage for insects, small mammals, and birds, while potentially carrying out their full life cycles.

Many resident and migratory birds breed and forage within grassland habitats. Birds directly observed foraging in or over these fields included the red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferous*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), song sparrow (*Melospiza melodia*), golden-crowned sparrow (*Zonotrichia atricapilla*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), purple finch (*Carpodacus purpureus*) and house sparrow (*Passer domesticus*). Other resident and migratory birds that may occur in the grassland areas of the study area include the burrowing owl (*Athene cunicularia*) – evidence of which was observed at Pond 6, white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), western kingbird (*Tyrannus verticalis*), loggerhead shrike (*Lanius ludovicianus*), western scrub-jay (*Aphelocoma californica*), common raven (*Corvus corax*), yellow-billed magpie (*Pica nuttalli*), yellow-rumped warbler (*Dendroica coronata*), savannah sparrow (*Passerculus sandwichensis*), brown-headed cowbird (*Molothrus ater*), brewers blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Carduelis psaltria*) and American goldfinch (*Carduelis tristis*).

Evidence of small mammals was found in the grasslands of the study area and included the California meadow vole (*Microtus californicus*), Botta's pocket gopher (*Thomonys bottae*), and black-tailed hare (*Lepus californicus*). The ornate shrew (*Sorex ornatus*), cottontail (*Sylvilagus audubonii*), and western harvest mouse (*Reithrodontomys megalotis*) are also expected to occur throughout the grassland areas of the study area. Such small mammals often attract predators, including reptiles and birds previously discussed. The abundance of these species also attracts larger mammals known to occur in the region, including the coyote (*Canis latrans*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), American badger (*Taxidea taxus*), striped skunk (*Mephitis mephitis*), and bobcat (*Lynx rufus*). The larger of these predators also prey on large mammals such as the black-tailed deer (*Odocoileus hemionus columbiana*), evidence of which was observed on the site during the July 2008 site visit.

2.1.2 Manmade Ponds

Multiple manmade ponds occur throughout the study area and potential impact areas (Figure 2). These ponds are comprised of water treatment/evaporation ponds (RM I, RM II and Pond 6) and mixing ponds that occur throughout the golf course. Although these ponds are manmade, they provide suitable habitat for a variety of wildlife.

Aquatic species observed in the mixing ponds included the carnivorous largemouth bass (*Micropterus salmoides*), adult catfish (Ictaluridae), western mosquitofish (*Gambusia affinis*) and Louisiana red-swamp crayfish (*Procambarus clarkii*).

Avian species observed in the various ponds included Canada goose (*Branta Canadensis*), mallard (*Anas platyrhynchos*), ruddy duck (*Oxyura jamaicensis*), lesser scaup (*Aythya affinis*), bufflehead (*Bucephala albeola*), American coots (*Fulica americana*), black-necked stilt (*Himantopus mexicanus*), tree swallow (*Tachycineta bicolor*), violet-green swallow (*T. thalassina*), barn swallow (*Hirundo rustica*), and red-winged blackbird. Other avian species that may occur in these ponds during migration or breeding include gadwall (*Anas strepera*), American wigeon (*A. americana*), Eurasian wigeon (*A. penelope*), northern pintail (*A. acuta*), cinnamon teal (*A. cyanoptera*), canvasback (*Aythya valisineria*), common goldeneye (*Bucephala clangula*), American avocet (*Recurvirostra americana*), and marbled godwit (*Limosa fedoa*). Evidence (white wash, feathers, and pellets) of burrowing owl was found at a large burrow adjacent to Pond 6.

Many of the mammals that occur in the grassland areas of the site also occur around the various ponds of the study area. Pond 6 was not inundated during the March and April 2008 surveys and avian activity was relatively low, with species such as black phoebe and sparrows utilizing this area; however there was abundant evidence of mammal use. Prints and scats of raccoon, badger, bobcat and deer were all observed within the confines of Pond 6.

2.1.3 Seasonal Drainage/Riparian

A relatively small seasonal drainage/riparian corridor occurs along a portion of the southern boundary of the study area (Figure 2), and runs parallel to Marks Drive for approximately 0.33 miles from east to west, and is adjacent to a mixing pond. A portion of the golf course occurs on either side of this feature, and housing occurs to the north. Although this feature does not appear to be a tributary to other waters, and is not designated by a dashed or solid blue line on USGS topographic maps, it does have a defined bed and bank and supports woody vegetation characteristic of riparian areas. This feature contained a small amount of water during the March and April 2008 surveys. The feature does not support deep pools suitable for breeding by special status herps. Nasturtium (*Tropaeolum majus*) was a dominant component of the understory along with ruderal species occurring in the grasslands of the study area.

Several herp species may occur here, because of additional moisture and leaf litter, that wouldn't occur in other habitats of the study area. These species include ensatina (*Ensatina eschscholtzii*), arboreal salamander (*Aneides lugubris*), western toad (*Bufo boreas*), Pacific chorus frog (*Hyla regilla*), and western skink (*Eumeces skiltonianus*).

Many of the avian species already mentioned visit this habitat. In addition, acorn woodpeckers (*Melanerpes formicivorus*) were observed within the riparian corridor, and a pair of red-shouldered hawks was observed close to the riparian corridor. Other species that may occur in this habitat either regularly or during migrations include Cooper's hawk (*Accipiter cooperii*), northern flicker (*Colaptes auratus*), downy woodpecker (*Picoides pubescens*), nuttall's woodpecker (*P. nuttallii*), bushtit (*Psaltriparus minimus*), rufous-sided towhee (*Pipilo erythrophthalmus*), brown towhee (*P. fuscus*), dark-eyed junco (*Junco hyemalis*), northern oriole (*Icterus galbula*), and lesser goldfinch *(Carduelis psaltria*).

Mammalian species that occur in other parts of the study area are also expected to occur in the seasonal drainage/riparian habitat. The mature trees of the riparian corridor may also support habitat for a variety of bat species including Yuma myotis *(Myotis yumanensis*), long-eared

myotis (*M. evotis*), big brown bat (*Eptesicus fuscus*), western red bat *(Lasiurus blossevillii*), hoary bat (*Lasiurus cinereus*), and pallid bat (*Antrozous pallidus*).

2.2 MOVEMENT CORRIDORS

Many terrestrial animals need more than one biotic habitat in order to perform all of their biological activities. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles. Terrestrial animals use ridges, canyons, riparian areas, and open spaces to travel between their required habitats.

The importance of an area as a movement corridor depends on the species in question and its consistent use patterns. Animal movements generally can be divided into three major behavioral categories:

- Movements within a home range or territory;
- Movements during migration; and
- Movements during dispersal.

While no detailed study of animal movements has been conducted for the study area, knowledge of the site, its habitats, and the ecology of the species potentially occurring onsite permits sufficient predictions about the types of movements occurring in the region and whether or not the proposed project would constitute a significant impact to animal movements.

As noted in Section 2.1, the developed nature of the study area offers a moderate habitat value to wildlife in the project's vicinity. The more common species that occur have largely utilized the study area as part of their home range and to disperse from and across the site. These animals would move through all portions of the site, as they would also do on surrounding agricultural lands and open spaces. Due to the highly modified nature of the study area, it is likely only used in a limited way and does not provide a regionally unique corridor for movement of wildlife; however the various ponds may act as stepping stones for migratory bird species.

2.3 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by the CDFG. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or

endangered (CNPS 2001). Collectively, these plants and animals are referred to as "special status species."

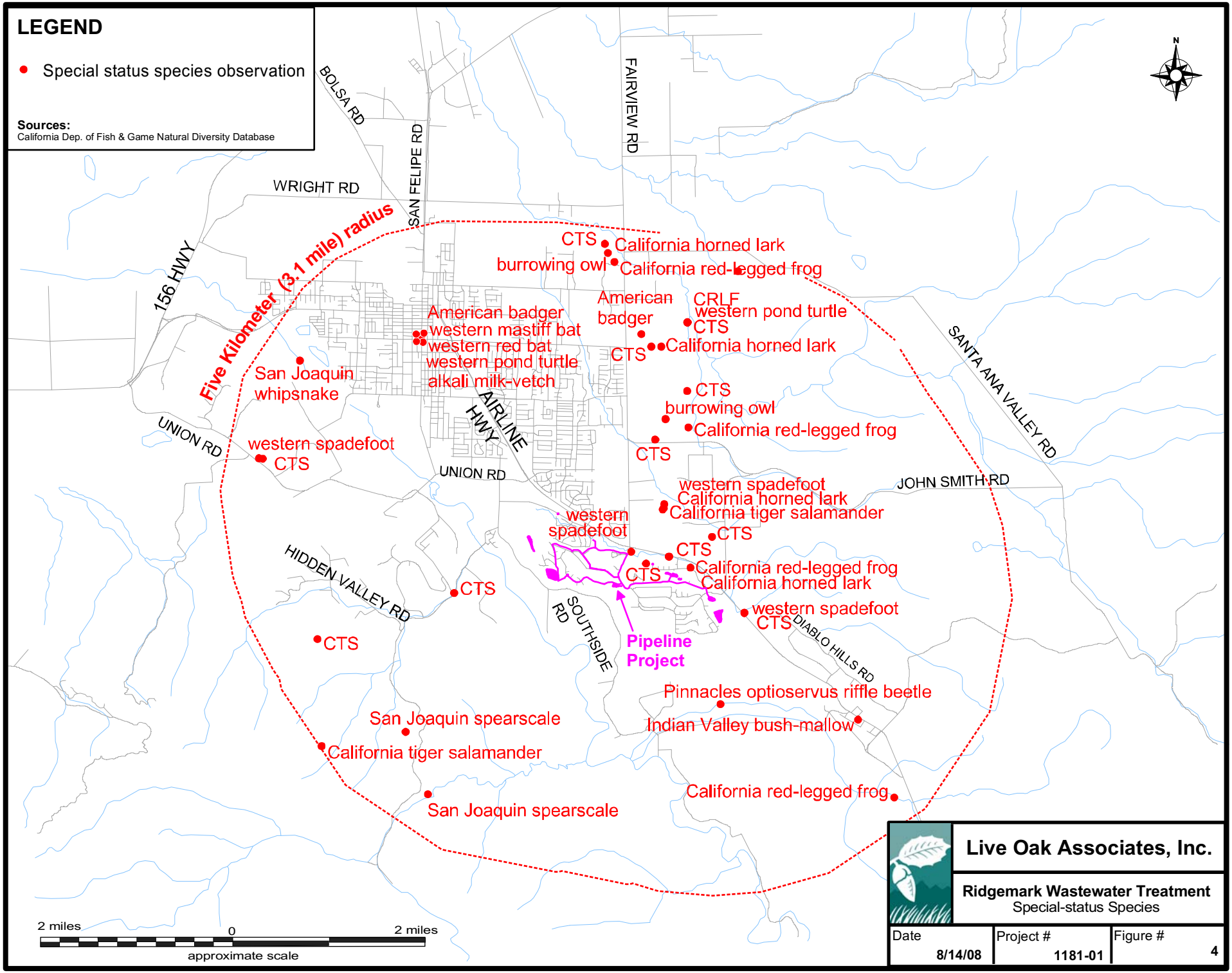
A number of special status plants and animals occur in the site's vicinity. These species and their potential to occur in the study area are listed in Table 1 on the following pages. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988), *California Natural Diversity Data Base* (CDFG 2008), *Endangered and Threatened Wildlife and Plants* (USFWS 2008), *State and Federally Listed Endangered and Threatened Animals of California* (CDFG 2008), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001). This information was used to evaluate the potential for special status plant and animal species that occur on the site. Figures 4 and 5 depict the location of special status species found by the California Natural Diversity Data Base (CNDDB) and LOA databases. It is important to note that the CNDDB is a volunteer database; therefore, it may not contain all known or gray literature records.

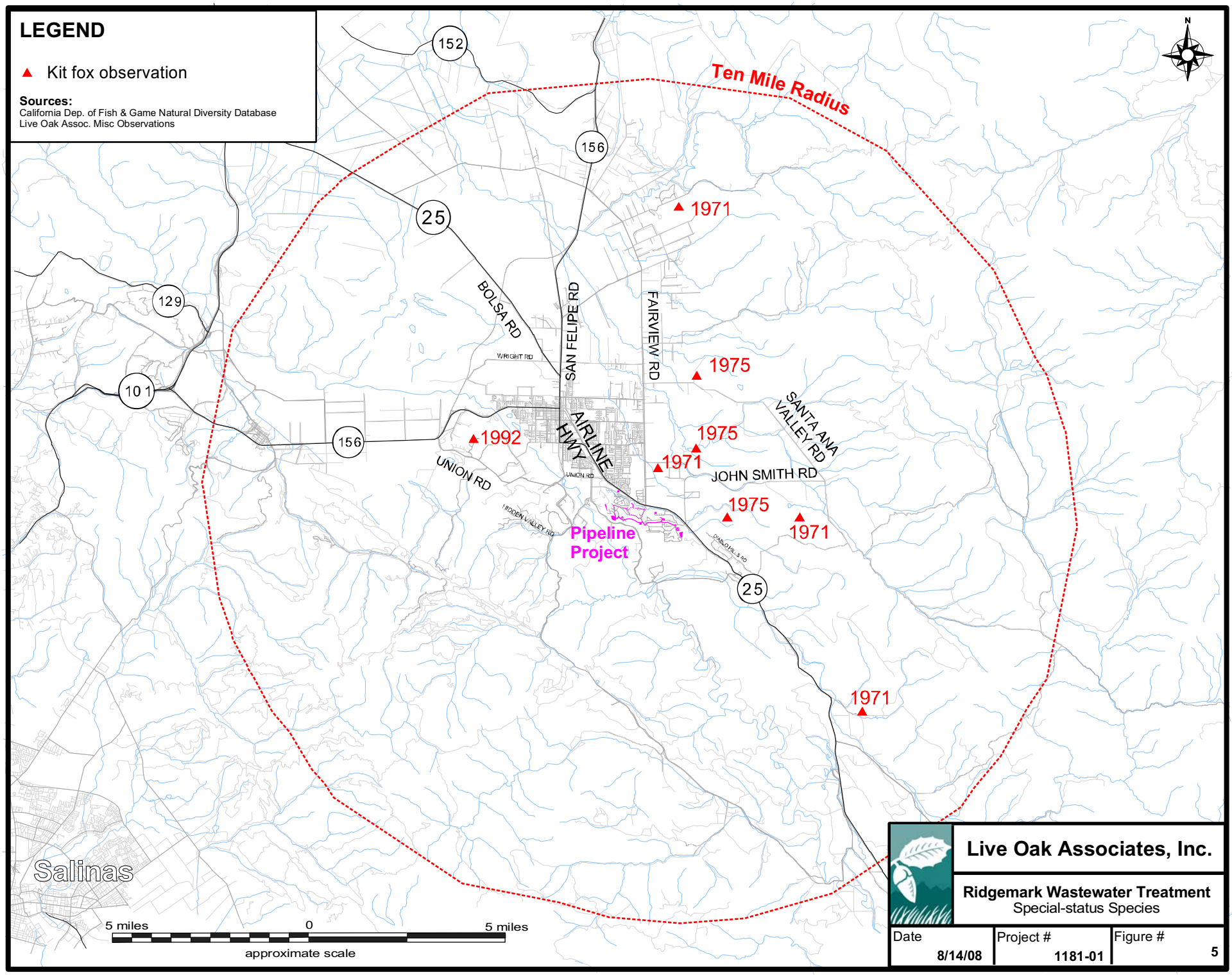
A search of published accounts for all relevant special status plant and animal species was conducted for the Tres Pinos and Hollister USGS 7.5" quadrangles in which the project site occurs and for the 10 surrounding quadrangles (Cherry Peak, Mariposa Peak, Mt. Harlan, Paicines, Quien Sabe Valley, San Felipe, Natividad, San Juan Bautista, Chittenden, and Three Sisters) using the California Natural Diversity Data Base Rarefind (CDFG 2008). All species listed as occurring in these quadrangles on CNPS Lists 1A, 1B, 2, or 4 were also reviewed.

2.3.1 Special Status Plants

There is only one federally endangered plant species, two-fork clover (*Trifolium amoenum*), listed in the search of published biological data for these quadrangles. This plant was last observed in 1903, and may be extirpated. It is absent from the study area.

Suitable habitat (e.g., serpentine habitats, wetlands, marshes and swamps, coniferous forest, chaparral, coastal scrub, etc.) for regional special status plants is completely lacking from the study area due to its developed nature and the fact that the study area is either above or below the known elevation range for these plants. These species include the Gabilan Mountains manzanita (*Arctostaphylos gabilanensis*), Pajaro manzanita (*A. pajaroensis*), alkali milk-vetch (*Astragalus tener* var. *tener*), San Joaquin spearscale (*Atriplex joaquiniana*), round-leaved filaree (*California macrophylla*), chaparral harebell (*Campanula exigua*), pink creamsacs (*Castilleja rubicundula* ssp. *rubicundula*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), Pinnacles buckwheat (*Eriogonum nortonii*), Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*), fragrant fritillary (*Fritillaria liliacea*), Loma Prieta hoita (*Hoita strobilina*), Indian Valley bush mallow (*Malacothamnus aboriginum*), marsh microseris (*Microseris paludosa*), shining navarretia (*Navarretia nigelliformis ssp. radians*), hairless popcorn flower (*Plagiobothrys glaber*), most beautiful jewel-flower (*Streptanthus albidus ssp. peramoenus*), and saline clover (*Trifolium depauperatum* var. *hydrophilum*). Due to the lack of suitable habitat within the study area for special status plant species of the region, they are not included in Table 2.


LEGEND
Special status species observation
Sources:
California Dep. of Fish & Game Natural Diversity Database
BOLSA RD
SAN FELIPE RD
FAIRVIEW RD
WRIGHT RD
156 HWY
Five Kilometer (3.1 mile) radius
SANTA ANA VALLEY RD
AIRLINE HWY
UNION RD
JOHN SMITH RD
HIDDEN VALLEY RD
SOUTHSIDE RD
DIABLO HILLS RD
CTS
California horned lark
burrowing owl
California red-legged frog
American badger
CRLF
western pond turtle
western mastiff bat
western red bat
western pond turtle
alkali milk-vetch
San Joaquin whipsnake
western spadefoot
California tiger salamander
Pipeline Project
Pinnacles optioservus riffle beetle
Indian Valley bush-mallow
San Joaquin spearscale
2 miles
0
2 miles
approximate scale
Live Oak Associates, Inc.
Ridgemark Wastewater Treatment
Special-status Species
Date 8/14/08
Project # 1181-01
Figure # 4


LEGEND
Kit fox observation
Sources:
California Dep. of Fish & Game Natural Diversity Database
Live Oak Assoc. Misc Observations
Ten Mile Radius
N
152
156
25
129
101
BOLSA RD
WRIGHT RD
SAN FELIPE RD
FAIRVIEW RD
AIRLINE HWY
UNION RD
HIDDEN VALLEY RD
SANTA ANA VALLEY RD
JOHN SMITH RD
OAKLOMS RD
1971
1975
1992
Pipeline Project
Salinas
5 miles
0
5 miles
approximate scale
Live Oak Associates, Inc.
Ridgemark Wastewater Treatment
Special-status Species
Date 8/14/08
Project # 1181-01
Figure # 5

2.3.2 Special Status Animals

Several special status animal species that occur or once occurred within the region of the study area are absent due to a lack of suitable habitat requirements or because the study area is outside the species' known range. These species include steelhead (*Onchorhynchus mykiss irideus*), foothill yellow-legged frog (*Rana boylii*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), bank swallow (*Riparia riparia*), least Bell's vireo (*Vireo bellii*), and yellow-breasted chat (*Icteria virens*). The remainder of special status animal species that do or could potentially occur within the vicinity of the study area are discussed in Table 2.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFG 2008 and USFWS 2008)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence in the Study Area
California tiger salamander *(Ambystoma californiense)*	FT, SCE	Breeds in vernal pools and stock ponds of central California; adults aestivate in grassland habitats adjacent to the breeding sites.	**Present.** CTS larvae were observed by Dr. Jennings in a pond at the terminus of Paullus Drive within the Ridgemark development in 1999. This pond has been protected by the golf course and it is expected that CTS may still use the pond for breeding habitat; therefore, they are presumed present within the study area. However, this pond is approximately 0.25 miles from the nearest point of proposed work, and therefore is not within the potential impact area.
California red-legged frog *(Rana draytonii)*	FT, CSC	Rivers, creeks and stock ponds of the Sierra foothills and coast range, preferring pools with overhanging vegetation. May also be found in a variety of upland habitats.	**Present.** Suitable breeding habitat for CRLF occurs in the pond at the terminus of Paullus Drive, and this species was documented by Dr. Jennings in 1999. This pond has been protected by the golf course and it is expected that CRLF may still use the pond for breeding habitat; therefore, they are presumed present within the study area. However, this pond is approximately 0.25 miles from the nearest point of proposed work, and therefore is not within the potential impact area.
San Joaquin kit fox *(Vulpes macrotis mutica)*	FE, CT	Frequents annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose-textured sandy soils for burrowing and suitable prey base. Utilizes enlarged (4 to 10 inches in diameter) ground squirrel burrows as denning habitat. May forage in adjacent agricultural habitats.	**Absent.** The study area and potential impact area do not support suitable denning habitat (i.e., fossorial burrows of $\geq$4" diameter for a length of at least 2') for the San Joaquin kit fox. No evidence of this species was noted onsite during the 2008 surveys. There have been 8 observations of kit fox within 10 miles of the study area (7 of which were observed in the early- to mid—70s). The nearest observation of this species occurred approximately 0.5 miles north of the project site in '71. Since that sighting, only 1 occurrence, which took place in '92, approximately 5 miles NW of the site, has been documented in the region. Numerous regional surveys, conducted before and after the '92 occurrence, failed to detect this species. It is possible, though highly unlikely, an errant kit fox could wander through the Ridgemark development while searching for suitable denning habitat that may be available in the region beyond the confines of the site.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS – cont'd.

California Species of Special Concern and Protected Species

Species	Status	Habitat	*Occurrence in the Study Area
Coast Range newt *(Taricha torosa torosa)*	CSC	Breeds in ponds, reservoirs and slow moving water. May also occur in large streams and rivers.	**Absent.** Although potentially suitable habitat for the coast range newt is present in the form of the pond at the terminus of Paullus Drive, it has not been documented within the study area. There is only one regional occurrence of this species approximately 5 miles to the west that occurred in 1998, beyond many roadways and some urban development.
Western spadefoot *(Spea hammondii)*	CSC	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	**Present.** Western spadefoot toads have been observed onsite (in the area of Paullus Drive) by Dr. Jennings in 1999. This species was also observed during trapping arrays conducted just north of the golf course entrance in 2005. Therefore, this species is presumed present within the study area, but not within the potential impact area.
Western pond turtle *(Actinemys marmorata)*	CSC	Open slow-moving water of rivers and creeks, and ponds of central California with rocks and logs for basking.	**Possible.** Although no western pond turtles were observed within the study area, they are known to occur within the region, and it is possible for them to utilize the ponds in the potential impact area from time to time.
Golden eagle *(Aquila chrysaetos)*	CSC	Typically frequents rolling foothills, mountain areas, woodland areas, sage-juniper flats, and desert habitats.	**Possible.** The mature trees of the study area provide suitable perching and potential breeding habitat for golden eagles. This species was observed by LOA on a nearby property in October 2007. The surrounding lands offer suitable foraging habitat for this species.
White-tailed kite *(Elanus leucurus)*	CP	Open grasslands and agricultural areas throughout central California.	**Possible.** The mature trees of the study area provide suitable breeding habitat for white-tailed kites. The undeveloped areas of the study area and surrounding lands offer suitable foraging habitat for this species.
Northern harrier *(Circus cyaneus)*	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	**Unlikely.** The northern harrier is a ground nesting bird that requires open grasslands for all stages of its life cycle. Due to the developed nature of the study area, it is unlikely this species would occur here, though it may occasionally pass over while looking for more suitable habitat.
Merlin *(Falco columbarius)*	CSC	Breeds in Canada but winters in a variety of California habitats, including grasslands, savannahs, and wetlands.	**Unlikely.** Breeding habitat within the study area is absent for the merlin, though it may visit the site from time to time as a winter migrant.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS – cont'd.

California Species of Special Concern and Protected Species

Species	Status	Habitat	*Occurrence in the Study Area
Burrowing owl *(Athene cunicularia)*	CSC	Open, dry grasslands, deserts and ruderal areas. Requires suitable burrows. This species is often associated with California ground squirrels.	**Present.** Although a direct observation of an individual burrowing owl was not made during the March and April 2008 surveys, evidence (i.e., white wash, feathers and pellets) of BUOW was observed in a large burrow at Pond 6.
Tricolored blackbird *(Agelaius tricolor)*	CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in nearby grassland and cropland habitats.	**Possible.** Although no tricolored blackbirds were observed during the 2008 surveys, one of the mixing ponds on the golf course supports a relatively dense population of typha, and therefore supports potentially suitable breeding habitat for this species.
Western red bat *(Lasiurus blossevillii)*	CSC	Roosts mainly in trees or transition zones near a water source. Feeds mainly on moths, crickets and cicadas.	**Possible.** Potentially suitable roosting habitat for the western red bat occurs within the many mature trees of the study area. Foraging habitat is abundant.
Pallid bat *(Antrozous pallidus)*	CSC	Grasslands, chaparral, woodlands, and forests of California; most common in dry rocky open areas that provide roosting opportunities. Feeds mainly on crickets and other arthropods.	**Possible.** Potentially suitable roosting habitat for the pallid bat occurs within the many mature trees of the study area. Foraging habitat is abundant.
Western mastiff bat *(Eumops perotis californicus)*	CSC	Roosts mainly in crevices of rock cliffs and tall buildings, less often in trees. Feeds mainly on hymenopterous insects over extensive open areas.	**Unlikely.** Roosting habitat is generally lacking for the western mastiff bat within the study area. This species may occur from time to time while foraging in the open fields adjacent to the study area.
Ringtail (*Bassariscus astutus*)	CP	Occurs in riparian and heavily wooded habitats near water.	**Absent.** The small riparian area that occurs within the study area is isolated from more suitable habitat for the ringtail.
American badger *(Taxidea taxus)*	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	**Present.** One badger burrow and tracks were observed at Pond 6 during the 2008 surveys. The abandoned burrow has since been occupied by at least one burrowing owl.

***Explanation of Occurrence Designations and Status Codes**

Present: Species observed on the sites at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed on the sites, but it could occur there from time to time.
Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed on the sites, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CP	California Protected
FC	Federal Candidate	CSC	California Species of Special Concern
		SCE	California Candidate (Endangered)

CNPS	California Native Plant Society Listing		
1A	Plants Presumed Extinct in California	3	Plants about which more information is needed – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch list
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		

2.4 ENDANGERED, THREATENED, OR SPECIAL STATUS PLANT AND ANIMAL SPECIES MERITING FURTHER DISCUSSION

Most of the special status animal species that have been documented in the region may occur rarely or occasionally on the site (Table 2). For these species, sufficient information exists to evaluate the potential imposed impacts the pipeline project may have on them. A few of the state- and/or federally-listed species require additional in-depth analysis. Below are detailed discussions that include an analysis of their legal status, ecology, and the suitability of the site to support them.

2.4.1 California Tiger Salamander (*Ambystoma californiense*). Federal Listing Status: Threatened; State Listing Status: Candidate for Endangered Listing.

The USFWS listed the California tiger salamander as threatened on August 4, 2004 (69 Fed. Reg. 47212-47248). There is currently (5 February 2009) a petition to list this species as endangered under the California Endangered Species Act, and the petition is under a 12 month review. While the petition is under review, the CTS is treated as if it were already listed

Life History and Ecology. The California tiger salamander is a large terrestrial salamander, with adults attaining a total length of over 8 inches (203 millimeters) [Stebbins 1951]. Dorsally, the background color appears to be jet black--normally with an overlain pattern of white or yellow spots, or bars (Stebbins 1985; Petranka 1998). Adult California tiger salamanders breed from late November through February, following the onset of winter rains (Storer 1925; Barry and Shaffer 1994). Both males and females travel up to 1 mile (1.6 km) or more during nocturnal breeding migrations from subterranean refuge, or aestivation, sites (i.e., small mammal burrows) to egg deposition sites in long-lasting, rain-filled vernal pools (Twitty 1941; Loredo et al. 1961; Andersen 1968; Austin and Shaffer 1992).

Embryos of California tiger salamanders hatch in approximately 14-28 days after being laid and the resulting gilled, aquatic larvae [0.41-0.43 inches (10.5-11 mm) in length] require a minimum of about 10-12 weeks to complete development through metamorphosis (Storer 1925; Twitty 1941). Following metamorphosis (normally from early May through July), juveniles emigrate en masse at night into small mammal burrows or deep cracks in the soil, which they use as refugia during the hot summer and fall months (Shaffer et al. 1993; Loredo et al. 1996).

Anecdotal evidence indicates that salamanders have a high degree of site fidelity to their breeding ponds and also to the small mammal burrows they use for refugia (Shaffer et al. 1993).

Sites used for reproduction are typically natural pools that fill with rainwater and artificial stock ponds; however, salamanders have also been observed to breed in springs, wells, artificial reservoirs, quarry ponds, man-made canals, and rarely, in the slack waters of oxbows in small- to medium-sized streams. Such sites may, or may not contain dense amounts of aquatic and streamside vegetation. The highest numbers of larvae appear to occur in aquatic habitats that are largely devoid of any vegetation and contain very turbid water. Salamanders may also turn up in certain man-made structures (e.g. wet basements, wells, swimming pools, underground pipes, and septic tank drains), sometimes many years after their local breeding site has been destroyed by urbanization (Storer 1925; Pickwell 1947).

Juvenile and adult salamanders typically use the burrows of California ground squirrels and pocket gophers as underground refugia (Storer 1925; Jennings and Hayes 1994; Jennings 1996; Loredo et a1. 1996) but may use a variety of burrows including cracks within the soil that may extend up to 15 feet (4.6 m) deep from the soil surface (Jennings, unpub. data). Juvenile and adult salamanders are especially common in situations where piles of concrete, rock, or other rubble are mixed with dirt and are located near breeding sites (Jennings, unpub. data).

Potential to Occur Onsite. California tiger salamanders have been observed in a pond located at the terminus of Paullus Drive within the study area (referred to as the "mitigation pond"). This pond has apparently been protected as a mitigation pond for the species. Dr. Jennings observed CTS larvae in this pond in 1999, and the species is still presumed present. The known CTS pond is outside of the potential impact area, and none of the ponds within the potential impact area would support CTS due to predacious species (e.g., bass, catfish, crayfish, etc.) and chemicals used to treat the water for algae control. Estivation is not expected to take place within the potential impact areas, as the work will be taking place in high traffic areas that are generally inaccessible to the species. This includes the golf course and site of the alternative alignment; however, the golf course does support a number of Botta pocket gopher (*Thomomys bottae*) burrows which could potentially provide estivation habitat to CTS if they could make it through the complex matrix that is the Ridgemark residential development.

2.4.2 California Red-Legged Frog (*Rana draytonii*). Federal Listing Status: Threatened; State Listing Status: None.

The California red-legged frog (*Rana draytonii*) was listed as Threatened by the U.S. Fish and Wildlife Service under the authority of the Federal Endangered Species Act on May 23, 1996. The frog was listed because it had been extirpated from 70 percent of its historic range and remaining populations are currently threatened by a wide variety of human impacts (66 CFR14626). On March 13, 2001 the FWS made the Final Determination of Critical Habitat for the California red-legged frog. On July 2, 2002, FWS greatly reduced the Critical Habitat for the California red-legged frog as part of a lawsuit settlement. FWS planned to redraw the critical habitat map for this species by 2005; however, the final decision has not yet been made. On 16 September 2008, the FWS issued the Revised Critical Habitat for the California Red-Legged Frog (*Rana aurora draytonii*); Proposed Rule [FWS-R8-ES-2008-0089]. A 60-day comment period started that same day. If this rule passes, critical habitat for the California red-legged frog will increase some 300% over 2002 acreages.

The California red-legged frog is the largest native frog in California with adults attaining a length of 3.4-5.4 inches (85-138 mm) snout-to-vent length (SVL) (Jennings and Hayes 1994).

On the dorsal surface, the background color varies from brown to gray to reddish-brown, normally with some dark mottling peppered around spots with light-colored centers (Stebbins 1985). The distribution of reddish pigment is highly variable, but is usually restricted to the groin and undersurfaces of the thighs, legs, and feet (Jennings and Hayes 1994). This red coloration is not diagnostic for species identification. Two distinctive, prominent folds of skin ("dorsolateral folds"), run in a complete line from the rear of the eyes to the groin. The groin has a distinctly mottled pattern of black on a light-colored background. Juvenile frogs range from 1.5-3.4 inches (40-84 mm) SVL and have the same coloration as adults except that the dorsolateral folds are normally yellow or orange colored (Stebbins 1985). This coloration is distinct even at a distance. Larval frogs range from 0.6-3.1 inches (14-80 mm) SVL.

Life History and Ecology. Adult California red-legged frogs have been observed breeding from late November through early May after the onset of warm rains (Storer 1925, Jennings and Hayes 1994). Male frogs typically attract females by emitting low short calls in small mobile groups of 3-7 individuals (Jennings and Hayes 1994). Females move toward the calling groups and amplex a male. Following amplexus, the females move to chosen oviposition sites where they attach an egg mass of 2,000-6,000 moderate-sized (2.0-2.8 mm diameter) eggs to an emergent vegetation brace such as tule stalks, grasses, or willow roots located just below the water surface (Storer 1925, Livezey and Wright 1947). Once laid, the egg mass will swell with water for about 24 hours, finally reaching the size of a softball. Males usually remain at the breeding sites for several weeks after reproduction before moving to foraging habitats, while females immediately remove to foraging habitats.

California red-legged frog embryos hatch about 6-14 days following fertilization. The resulting larvae (8.8-10.3 mm) require 14-28 weeks to reach metamorphosis, which usually occurs between July and September, although there are scattered observations of overwintering larvae in perennial ponds such as at the arboretum at Golden Gate Park in San Francisco (Jennings, *pers. comm.*). Tadpoles generally metamorphose at 65-85 mm total length (Storer 1925) and the newly emerged juvenile frogs are generally 25-30 mm SVL. Larvae are thought to graze on algae, but they are rarely observed in the field because they spend most of their time concealed in submergent vegetation, algal mats or detritus (Jennings and Hayes 1994). Post-metamorphic frogs grow rapidly feeding on a wide variety of invertebrates.

Males typically reach sexual maturity at 2 years and females at 3 years; however, frogs of both sexes may reach sexual maturity in a single year if resources are sufficient (Jennings, *pers. comm.*). Conversely, frogs may take 3-4 years to reach maturity during extended periods of drought (Jennings and Hayes 1994). Based on limited field data, California red-legged frogs appear to live up to 10 years in the wild (Jennings, *pers. comm.*). Adult frogs apparently eat a wide variety of animal prey including invertebrates, small fishes, frogs, and small mammals.

California red-legged frogs have been observed in a number of aquatic and terrestrial habitats throughout their historic range. Larvae, juveniles, and adult frogs have been collected from natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stockponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs (Jennings 1988). The key to the presence of frogs in these habitats is the presence of perennial (or near perennial) water and the general lack of introduced aquatic predators such as largemouth bass (*Micropterus salmoides*), green sunfish (*Lepomis cyanellus*),

and bluegill (*L. macrochirus*), crayfish (*Pacifastacus leniusculus* and *Procambarus // larkia*), and bullfrogs (*Rana catesbeiana*). The habitats observed to contain the largest densities of red-legged frogs are associated with deep-water pools (27 inches [>0.7 meters] deep) with stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha latifolia*), tules (*Scirpus* spp.), or sedges (*Carex* sp.) (Hayes and Jennings 1988). However, California red-legged frogs have also been observed to inhabit stock ponds, sewage treatment ponds, and artificial (=concrete) pools completely devoid of vegetation (Storer 1925; Jennings, *pers. comm.*). Continued survival of frogs in all aquatic habitats seems to be based on the continued presence of ponds, springs, or pools that are disjunct from perennial streams. Such habitats provide the continued basis for successful reproduction and recruitment year after year into nearby drainages that may lose frog populations due to stochastic events such as extreme flooding or droughts. Juvenile frogs are often observed sunning themselves during the day in the warm, surface-water layer associated with floating and submerged vegetation (Hayes and Tennant 1986). Adult frogs are largely nocturnal and are known to sit on stream banks or on the low hanging limbs of willow trees over pools of water where they can detect small mammal prey (Hayes and Tennant 1986, Jennings and Hayes 1994). Radio tracking studies conducted in lagoons and the lower portions of streams along the Central Coast of California show that adult red-legged frogs will move within the riparian zone from well-vegetated areas to pools of water to hydrate during periods of time when many of the Central Coast streams are dry except for isolated pools (Rathbun et al. 1993). During wet periods (especially in the winter and early spring months), red-legged frogs can move long distances (e.g., 1 mile) between aquatic habitats, often over areas that are considered to be unsuitable for frogs (e.g., roads, open fields, croplands, etc.). Such activities can result in frogs ending up in isolated aquatic habitats well away from the nearest known frog populations.

Potential to Occur Onsite. California red-legged frogs (CRLF) have been observed by Dr. Jennings in 1999 in the pond located at the terminus of Paullus Drive. It is presumed that this population still exists. However, this pond is outside of the potential impact area, and none of the ponds (i.e., mixing ponds or wastewater ponds) within the potential impact area would support CRLF due mainly to chemicals used to treat the water, and the inhospitable matrix that the animal would have to navigate to reach one of the mixing ponds found within the golf course. Estivation is not expected to take place within the potential impact areas, as the work will be taking place in high traffic areas that are generally inaccessible to the species. The Ridgemark development is outside the critical habitat for CRLF proposed under the new rule (see physical description p. 53508 and map p. 53632 of the proposed rule).

2.4.3 Western spadefoot (*Spea hammondii*). Federal Listing Status: Species of Concern; State Listing Status: Species of Special Concern

The western spadefoot (*Spea hammondii*) is designated as a Species of Special Concern with the California Department of Fish and Game, and classified as "protected" by the Department (CDFG 1999). Although this organism no longer has an official status as a candidate species for potential listing under the Federal Endangered Species Act by the U.S. Fish and Wildlife Service, it nonetheless has disappeared from more than 30% of its native range in north and central California (Jennings & Hayes 1994). A significant percentage of remaining populations are currently threatened by a wide variety of human impacts including urban encroachment,

construction of reservoirs and water diversions, introductions of exotic predators and competitors, sand and gravel operations, livestock grazing, and habitat fragmentation.

This near endemic to California, the spadefoot ranges from the vicinity of Redding, Shasta County, southward into northwestern Baja California, Mexico (Stebbins 1985). Its known elevation range extends from near sea level to 1363 m (Zeiner et al. 1988). In California, the known range of the spadefoot is entirely west of the Sierran-desert range axis (Myers 1944; Figure 26). The status of western spadefoot is stable to declining.

Concern over the decline of the spadefoot is not new. Nearly 20 years ago, both Robert L. Livezey and Rudolfo Ruibal (in litt. 3 and 7 February 1972 to Leonard Fisk) believed that this taxon had sustained drastic reductions over the previous 15-20 years in the Central Valley and southern California. Current data indicate that in southern California (from the Santa Clara River Valley, Los Angeles and Ventura counties, southward), > 80% of habitat once known to be occupied by the spadefoot has been developed or converted to uses that are undoubtedly incompatible with its successful reproduction and recruitment. In northern and central California, loss of habitat has been less severe, but nevertheless significant; it is estimated that >30% of the habitat once known to be occupied by the spadefoot has been developed or converted to uses incompatible with the survival of this taxon. Regions severely affected include the lower two-thirds of the Salinas River system, and much of the areas east of Sacramento, Fresno, and Bakersfield. Moreover, in, many areas of the Central Valley, remaining suitable rainpool or vernal pool habitat, which is concentrated on valley terraces along the edges of the Valley Floor, has been disappearing in a fragmented fashion, which may present a significant threat to the metapopulation structure of the spadefoot. The continued placement of mosquitofish by mosquito abatement programs in vernal pools threatens some populations (S. Morey, pers. comm.; pers. observ.). Emigration of juvenile and adult bullfrogs into rainpool breeding sites may also pose a threat to some populations (Hayes and Warner 1985; Morey and Gullin 1992).

Life History and Ecology. Adult western spadefoots have been observed to breed from late February through late May after the onset of warm rains (Storer 1925, Burgess 1950, Feaver 1971). They can form large (>1000 individuals), highly vocal, breeding aggregations, although choruses are normally much smaller (Jennings, unpubl. data). Males typically call at night and their voices (which sound something like the bleat of a sheep) carry over distances of more than 0.5 miles (0.6 kilometers) (Storer 1925). Calling males attract and amplex females, who deposit fertilized eggs in irregular, small (0.05-0.06 inches (1.4-1.7 millimeters) in diameter), cylindrical clusters of 10-42 which are attached to plant stems or pieces of detritus in temporary rain pools, or sometimes pools in ephemeral stream courses (Storer 1925, Stebbins 1985). After reproduction, both males and females leave the breeding site and forage for a few weeks before spending the next 8-9 months in subterranean dormancy (Storer 1925, Stebbins 1951).

Embryos of western spadefoots hatch in 0.6-6 days depending on the water temperature (Brown 1967), and larval development can be completed in 3-11 weeks (Burgess 1950, Feaver 1971), depending on food resources and water temperatures. However, larval development in the wild is rarely less than 30 days (Morey 1994, 1998). Larvae feed on algae, detritus, pollen, and other items, as well as conspecifics when pools dry and food resources become scarce during the late spring and early summer months (Stebbins 1951, Feaver 1971). Most larvae metamorphose into juveniles at 0.7-1.1 inches (16-31 millimeters) total length between March and August before

breeding ponds completely dry (Storer 1925, Morey 1994). However, during periods of drought or aseasonal rainfall, many larvae can be killed by breeding pond desiccation (Feaver 1971, Morey 1994, 1998). Post-metamorphic spadefoots feed on a wide variety of invertebrates including crickets (Gryllacrididae), butterflies (Noctuidae), beetles (Carabidae, Dytiscidae, Coccinellidae, and Elateridae), flies (Heleomyzidae), ants (Formicidae), and earthworms (Haplotaxida) (Morey and Guinn 1992), and grow rapidly (Jennings and Hayes 1994). Both males and females probably reach sexual maturity in 2 years (Jennings and Hayes 1994). However, sexual maturity may be delayed by periods of extended drought or other factors which limit food supplies (Jennings, unpubl. data). It is unknown how long adults live in the wild, although other species of spadefoots have been kept for over 12 years in captivity (Bowler 1977).

Juvenile and adult spadefoots spend a considerable amount of time underground in either small mammal burrows, or in burrows of their own construction in, and around the margins of desiccated breeding ponds (Storer 1925, Stebbins 1951, 1972). Small mammal burrows used used include those of the California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and various species of kangaroo rats (*Dipodomys* ssp). (Stebbins 1951). The burrows constructed by spadefoots are at least 3-feet (1-meter) deep in loose, clay soil which becomes hard packed during the summer months (Stebbins 1972, Jennings and Hayes 1994). Both juvenile and adult western spadefoots may become surface active during any month between October and April if enough rain has fallen (Morey and Guinn 1992).

Western spadefoots have been observed in a variety of habitats, but are most common near the sand or gravely soils of rain pools and stock ponds in grassland and oak woodland habitats at elevations below 3,000 feet (960 meters) (Stebbins 1985). They have also been observed in sewage treatment ponds and sand and gravel ponds, as well as the temporary pools of intermittent streams (Jennings, unpubl. data). Spadefoot larvae are unable to coexist with introduced fishes of any kind (e.g., see Fisher and Shaffer 1996), hence they do not inhabit perennial aquatic habitats.

Western spadefoots are eaten by a wide variety of natural predators during each of their life stages. Known predators include California tiger salamander (*Ambystoma californiense*), introduced bullfrogs (*Rana catesbeiana*), garter snakes (*Thamnophis* spp), great blue herons (*Ardea herodias*), burrowing owls (*Athene cunicularia*), and raccoons (*Procyon lotor*) (Childs 1953, Anderson 1968, Feaver 1971, Morey and Guinn 1992, Morey 1994, Jennings, unpubl. data). CTS larvae can be significant predators of larval western spadefoots in their breeding ponds (Feaver 1971).

Potential to Occur Onsite. Dr. Jennings observed western spadefoot toads within the study area in 1999 in the area of the pond located at the terminus of Paullus Drive; and they were observed again to the north of the golf course entrance in 2005. It is presumed this species still occurs in the northernmost areas of the study area. This species is not expected to occur within the potential impact areas of the existing wastewater treatment facilities, proposed pipelines, or mixing pond due to predacious species and chemicals used to treat waterways, and a general lack of suitable habitat for the species. Estivation is not expected to take place within the potential impact areas, as the work will be taking place in high traffic areas that are generally inaccessible to the species. This includes the golf course and site of the alternative alignment; however, the golf course does support a number of Botta pocket gopher burrows which could potentially

provide estivation habitat to western spadefoot toads if they could make it through the complex matrix that is the Ridgemark residential development.

2.4.4 Western Pond Turtle (*Actinemys marmorata*); Federal Listing Status: None; State Listing Status: Species of Special Concern

In 1992, based on concerns about widespread population declines due to the extensive loss of habitat, overexploitation, and introductions of non-native aquatic predators (57 FR 4561, Jennings and Hayes 1994), FWS was petitioned to list the western pond turtle (*Actinemys marmorata*) as an endangered species under the authority of the FESA (Sorensen and Propp 1992). The FWS subsequently ruled that the petition was not warranted. However, the California Department of Fish and Game has subsequently included this organism in its list of "Species of Special Concern" and no longer allows the take of this species without the expressed permission of the Department (California Department of Fish and Game 2002).

The western pond turtle is the only native aquatic (freshwater) turtle in California and it is found in a wide variety of aquatic habitats including streams, lakes and ponds. Adult turtles are moderate-sized [4.7-8.3 inches (120-210 mm) carapace length], and are generally brown or khaki-colored (Stebbins 1985). Carapace coloration is usually a dark brown or dull yellow-olive, with or without darker streaks or vermiculations radiating from the centers of the scutes (Ernst et al. 1994, Jennings and Hayes 1994). Hatchling and first-year juvenile turtles have long tails and carapaces that are usually brown or olive in dorsal coloration, with shell lengths generally between 0.99-4.3 inches (25-110 mm).

Life History and Ecology. Adult western pond turtles typically mate in late April or early May, although mating can occur year-round (Holland 1985). The nesting season is from late April to early August (Storer 1930, Rathbun et al. 1992, Jennings and Hayes 1994). Gravid females emigrate from their aquatic habitats to an unshaded, upland location that may be a considerable distance [1,312.4 feet (400 m) or more] from the riparian zones (Storer 1930, Rathbun et al. 1992); however, if nesting substrates and exposures are suitable, most nest locations are located close to riparian zones (Jennings, unpub. data). Shallow nests (Rathbun et al. 1992) are usually placed in well-drained clay or silt soils (Jennings and Hayes 1994) with females depositing from 1-13 (6 avg) eggs within the nest. The white eggs are elliptical-oval, approximately 1.2-1.7 inches (30.0-42.6 mm) long by 0.7-0.9 inches (18.5-22.6 mm) wide. The eggs have a hard outer calcium shell [ca. 3.9-4.7 inches (10-12 cm)], although eggs laid in excessively moist substrates have a high probability of failing because of the thin permeable shells (Feldman 1982). Females can lay more than one clutch of eggs a year (Goodman 1997b) and may dig several "false" nests lacking eggs to deter potential predators (Rathbun et al. 1993). Hatchling sex is determined by the incubation temperature (Ewert et al. 1994).

Young turtles hatch with carapace lengths between 0.99-1.1 inches (25-29 mm) (Ernst et al. 1994) after an incubation period of 3-4.5 months (Buskirk 1992, Goodman 1997a). Most hatchling turtles are thought to emerge from the nest and to move to aquatic sites in the spring (Buskirk 1992), where they typically double their length the first year and grow rapidly over the next 4-5 years (Storer 1930, Holland 1985). Sexual maturity probably occurs between 7 and 11 years of age with males maturing at slightly smaller sizes and ages than females (Jennings and Hayes 1994). Western pond turtles are known to live over 42 years in the wild (Jennings and

Hayes 1994), although most individuals have a much shorter life span of around 20-25 years (Bury 1972).

Young turtles spend most their time feeding in shallow water that is dominated by relatively dense vegetation of submergents, short emergents, or algal mats (Jennings and Hayes 1994). Juveniles and adults prefer lotic aquatic habitats with basking sites such as rocks and logs (Bury 1972). Juveniles and adults seem to remain in pond environments except when such ponds dry up, or at higher elevations when turtles may disperse into terrestrial environments to hibernate (Jennings and Hayes 1994, Bury and Holland, in press). In stream environments, juveniles and adults show considerable variation with regards to movements and the timing of movements into terrestrial environments (Reese and Welsh 1998). The largest turtle populations have been observed in slack- or slow-water habitats, which have abundant basking sites and underwater refugia (Bury 1972). The presence of dense stands of submergent or emergent vegetation, and abundant aquatic invertebrates resources, as well as suitable nearby nesting sites and the lack of native and exotic predators, are also important components (Bury 1972, Jennings and Hayes 1994, Bury and Holland, in press). Some turtles will leave the stream during the summer when water conditions are low and water temperatures are elevated [>95°F (>35°C)], while others will not. However, almost all turtles seem to leave streams during the winter months when large flood events are common (Reese and Welsh 1998). Additionally, some turtles will move considerable distances [e.g., 1,148 feet (350 m)] to overwinter in terrestrial habitats such as leaf litter or under the root masses of trees (Rathbun et al. 1992, Reese and Welsh 1998). Some individual turtles have displayed site fidelity for hibernation and nesting sites from year to year (Holland and Bury, in press).

Western pond turtles often move about from pool to pool in stream situations, sometimes on a daily basis during seasons of activity (Bury 1972, Reese and Welsh 1998). Distances moved along streams can be up to 3.1 miles (5 kilometers) [Bury and Holland, in press]. These turtles also have the ability to move several miles (kilometers) if their aquatic habitat dries up, and can tolerate at least 7 days without water, or 7 days of being immersed in full strength salt water (Jennings and Hayes 1994, Bury and Holland, in press).

Juvenile and adult western pond turtles feed largely on the same food items although juveniles feed more on smaller aquatic invertebrates (Bury 1986). These turtles are dietary generalists that are highly opportunistic (Ernst et al. 1994), and will consume almost anything that they are able to catch and overpower (Holland 1985). Western pond turtles are eaten by a wide variety of natural predators during their life span. Known predators include: bald eagles, ospreys, great blue herons, gulls, river otters, mink, raccoons, gray foxes, coyotes, black bears, introduced bullfrogs, and introduced largemouth bass (Bury 1972). Humans, especially near urban areas, also illegally collect juvenile and adult turtles.

Potential to Occur Onsite. Although western pond turtles have not been observed by LOA within the study area, nor have they been noted within the study area by CNDDB, they are known to occur in the region. There are two recorded sightings of WPT within 3 miles of the study area (Figure 4). This species is not affected by predacious fish and chemicals used to treat waters in the same way as other herps are. Therefore, WPT could potentially be found within any of the man made waterways associated with the project from time to time.

2.4.5 Western Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Special Concern.

The burrowing owl is considered a California species of special concern. This decision was based on the fact that the burrowing owl's population levels were decreasing due to habitat destruction, roadside nesting (vulnerability to human interference) and indirectly, ground squirrel poisoning.

The burrowing owl is a small, long-legged, semi-fossarial bird that averages a height of 9.5 inches, has an average wingspan of 23 inches, and weighs an average of 5.25 ounces. Burrowing owls are unique, as they are the only owl that regularly lives and breeds in underground nests. In California, these birds typically occur in the Central and Imperial Valleys, primarily utilizing ground squirrel burrow complexes (or the burrows of other animals, e.g., badgers, prairie dogs and kangaroo rats) found in grasslands, open shrub lands, deserts, and to a lesser extent, grazing and agricultural lands. Burrowing owls in this region are typically found in lower elevations, and have strong site fidelity. Pairs have been known to return to the same area year after year, and some pairs are known to utilize the same burrow as the previous year.

Life History and Ecology. Burrowing owls feed on various small mammals including deer mice, voles, and rats. They also prey on various invertebrates including crickets, beetles, grasshoppers, spiders, centipedes, scorpions and crayfish. Peak hunting periods occur around dusk and dawn.

The breeding season for the burrowing owl runs from February to August, with a peak between April and July. Clutch size varies from six to 12 eggs, with an average of seven to nine eggs. Females generally produce only one clutch per year. The female incubates the eggs for a month, while the male provides her food. The male continues to provide food during the brooding period. The young remain in their burrow for approximately two weeks after hatching, and become fully independent of their parents between eight to ten weeks of age. Burrowing owls are a fairly short-lived species, with an average life expectancy of 4.8 years. The oldest known wild burrowing owl was eight years and eight months old at the time of its death.

Burrowing owls are subject to predation by mammals (e.g., feral cats, bobcats, fox and coyotes). They are also susceptible to anthropogenic effects such as collisions with automobiles, and destruction or disruption of their nests, especially during the breeding season. The burrowing owl may also be affected by ground squirrel eradication efforts.

Burrowing owl numbers have been in decline over the past 30 to 40 years, in California. The decline in numbers is due mainly to habitat destruction by way of development and agricultural practices.

Potential to Occur Onsite. Evidence (i.e., white wash, feathers, and pellets) of burrowing owl use was observed in the one burrow of suitable size ($\geq$4" diameter) for the species within the potential impact area. The location of this burrow is at Pond 6 northwest of RMI, and appears to be an abandoned badger burrow. No other burrows of suitable size for BUOW were observed within the potential impact area or the greater study area. There is a general lack of ground squirrels (*Spermophilus beecheyi*), a species that often provides suitable nesting burrows for BUOW, throughout the Ridgemark development. It is likely this was a single owl that used the

site for several days to weeks, and not a bonded pair, as there was only the one burrow. When owls nest they generally use burrow complexes.

2.4.6 San Joaquin Kit Fox (*Vulpes macrotis mutica*). Federal Listing Status: Endangered; State Listing Status: Threatened.

By the time the U.S. Fish and Wildlife Service listed it as an endangered species under the authority of the Federal Endangered Species Act on March 11, 1967, the San Joaquin kit fox had been extirpated from much of its historic range. In 1998, the USFWS adopted a final recovery plan for the San Joaquin kit fox. On June 27, 1971, the State of California listed the kit fox as a threatened species.

Life History and Ecology. The San Joaquin kit fox, the smallest North American member of the dog family (Canidae), historically occupied the dry plains of the San Joaquin Valley, from San Joaquin County to southern Kern County (Grinnell et al. 1937). Critical habitat has yet to be established for the San Joaquin kit fox. Local surveys, research projects, and incidental sightings indicate that kit foxes currently occupy available habitat on the San Joaquin Valley floor and in the surrounding foothills.

Kit foxes prefer habitats of open or low vegetation with loose soils. In the northern portion of their range, they occupy grazed grasslands and, to a lesser extent, valley oak woodlands. In the southern and central portion of the Central Valley, kit foxes are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland (USFWS 1998). Kit foxes may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields (USFWS 1998).

Kit fox diets vary geographically, seasonally, and annually. In most of their range, which includes lands around the study area, known prey includes mice, insects, California ground squirrels, black-tailed hares, desert cottontails, and ground-nesting birds (Archon 1992; Jensen 1972).

The kit fox requires underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions (Golightly and Ohmart 1984). They usually occupy burrows excavated by small mammals, such as ground squirrels. Denning habitat consists of ground squirrel complexes in which some burrows have been enlarged to 4 to 10 inches in diameter for the length of a human arm (approximately 2 feet).

Potential to Occur Onsite. The San Joaquin kit fox is not reasonably expected to occur within the greater study area or the potential impact area. Of primary interest for this project are kit fox records from the region. According to the CNDDB (CDFG 2008), there have been a total of eight direct and indirect sightings within ten miles of the site since 1971 (Figure 5). The nearest observation was documented approximately 0.5 miles north of the project site in 1971. The most recent documented occurrence of this species took place in 1992, approximately 5 miles northwest of the site. Numerous regional surveys conducted before and after the 1992 occurrence have failed to detect this species.

Neither the greater study area nor the potential impact area support suitable denning habitat for the kit fox; and due to the developed nature of the study area, foraging habitat for kit fox is

minimal at best. The site is isolated from any extant subpopulations of kit fox, the nearest known population occurs in Panoche Valley, some 30 air miles southeast of the study area. Based on the site's location and the distribution of kit fox occurrences in its vicinity, the site is not essential to the regional movement of kit fox populations. For all intents and purposes, the site would tend to function more as a dispersal sink (i.e., a habitat in which a population is expected to decline to extinction due to sub-optimal foraging and breeding conditions) than as an area that would facilitate movements or aid in successful breeding.

The entire study area and potential impact area are developed with roads, residential development and a golf course. These are land uses that are not generally suitable for the San Joaquin kit fox; however, rangelands can provide marginal foraging habitat for this species. The study area itself does not support this type of habitat; however, this type of habitat occurs adjacent to it. The likelihood that a kit fox would travel through low-quality habitat to utilize the low-quality, developed areas of the study area is low. Any occurrence of kit fox is this area would be of an incidental nature.

The only fossorial mammal burrow observed within the study area that would be potentially suitable for a kit fox was the burrow being utilized by the burrowing owl. The San Joaquin kit fox requires burrows that are at least 4-inches in diameter for a length of at least 2-feet for denning. Ground squirrels, which often provide such denning opportunities for the kit fox, are absent from the study area. Therefore, the study area and potential impact area do not support suitable denning habitat for the kit fox.

In summary, the kit foxes no longer appears to inhabit the region. The Ridgemark development and surrounding lands are unsuitable habitats that present significant barriers to movement for this species. Based on this evidence, the kit fox is considered absent from the site.

2.4.7 American Badger (*Taxidea taxus)*. Federal Listing Status: None; State Listing Status: Species of Special Concern.

The American badger is considered a California species of special concern. This decision was based on the fact that the badger's population levels were decreasing due to mainly to habitat conversion from open grasslands to agriculture and urban uses, trapping for fur, and direct and indirect poisoning from eating poisoned rodents – their main prey base.

The American badger measures 520 to 875 mm (20 to 34 inches) from head to tail, with the tail making up only about 1/5 of this length. Badgers weigh between 4 and 12 kg (approximately 9 to 26 pounds). The body is flattened, and the legs are short and stocky, and the feet have long strong claws (up to 4-inches long). The fur on the back and flanks of the badger varies from brownish gray to a reddish color, with a buff colored underside. The face of the badger is distinct with several black patches on either side of its long snout. A white dorsal stripe extends back over the head from the nose, that in northern populations ends near the shoulders, while in southern populations continues over the back to the rump. Males are significantly larger than females (Kurta, 1995; Long, 1999). Badgers are primarily solitary, coming together for breeding purposes. Badgers are generally found through out California's arid grasslands and scrublands with friable soils from sea level to 12,000 feet, except the northern North Coast area (Grinnell et al, 1937). Badgers are primarily nocturnal and rarely seen during the day.

Life History and Ecology. Badgers feed on a variety of small to medium size mammals including deer mice, voles, and rats; in addition, they also feed on roots. Badgers will also eat reptiles and their eggs as well as birds and their eggs. Their main food source, however, is ground squirrels and pocket gophers. They are opportunistic foragers and their food sources shift seasonally with availability.

Badgers generally breed in late summer or early fall, experiencing a delayed implantation. Although the badger female is technically pregnant for seven months, actual gestation takes 6 weeks. Most cubs (pups or kits) are born in March or April and litter size ranges from 1 to 5 with an average of 3 (Long 1973). Females can breed as young as 4 to 6 months of age; however, their first litter usually occurs after one year of age. Males do not usually breed until after their second year. Badger cubs are born blind, furred and helpless (ibid). Their eyes open between 4 and 6 weeks of age, and they are nursed for approximately 2 months. After 2 months of age the mother starts supplementing their diet with solid food, usually small rodents. Most young disperse shortly after weaning, while some remain in their natal area until the next breeding season. They may roam up to 100 km (62 miles) to find their own home range. The average life of badgers in the wild is between 8 and 12 years.

The home range size for badgers varies by sex, season and prey base, with males having larger home ranges than females. One study indicated males had an average home range of 2,100 acres, while one radio collared female had a home range of 1,790 acres in summer, 131 acres in fall, and only 5 acres during the winter (Sargeant and Warner 1972). Another study indicated a home range size between 667 and 1,550 acres for both sexes (Lindzey 1978).

Badgers often hunt for prey by digging into fossorial mammal burrows. Coyotes have been known to follow badgers to take advantage of an easy meal as rodents are flushed from their burrows. Badgers may enlarge hunting burrows for sleeping and protection from weather. During the summer months, they dig new resting burrows nearly every day; these burrows are usually only a few feet deep. Their natal dens are more permanent and may be as much as 30 feet long and 10 feet deep (Banfield 1974).

Badgers are ferocious animals and have few natural predators, though they can be preyed upon by bear (*Ursus americanus*), bobcat, and cougar. As discussed above, the main threat to badgers comes from anthropogenic effects.

Potential to Occur Onsite. Evidence (i.e., a burrow wider than tall and tracks) of badger use was observed at the foot of a hill on the eastern side of Pond 6. No other such burrows were observed within the potential impact area or the greater study area during the March and April 2008 surveys. It is likely a badger used this area as a day resting spot and then moved on to off site portions of its home range.

2.5 BIOTIC RESOURCES REGULATED BY LOCAL, STATE, AND/OR FEDERAL JURISDICTIONS

2.5.1 Wetlands and Other "Jurisdictional Waters"

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds,

reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.4 of this report for additional information.

The only aquatic features occurring within the potential impact areas are manmade water treatment/evaporation and mixing ponds. Although one of the ponds receives water from the Delta, none of the ponds discharge water to tributaries to Waters of the U.S. or Waters of the State. Because these manmade ponds are isolated from known Waters of the U.S. and their tributaries, they do not replace the functions and values of historic waters, and do not meet the USACE's technical criteria for jurisdictional wetlands. Therefore, it is unlikely the USACE would claim jurisdiction over these features. Likewise, the CDFG and RWQCB would be unlikely to regulate these features. A Waters of the U.S. analysis has not been completed for the manmade ponds within the potential impact areas.

Although jurisdictional waters are presumed to be absent, the agencies are the final arbiters and could claim jurisdiction over any aquatic resources they determine to be under their jurisdiction.

2.5.2 Habitat Conservation Plan, Natural Community Conservation Plan or Other Approved Local, Regional, or State Habitat Conservation Plan

No habitat conservation plans (HCP) or natural community conservation plans (NCCP) or other are in effect for this project. While a draft HCP had been underway in this region for some time, this effort is no longer moving forward.

3 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

Approval of general plans, area plans, and specific projects is subject to the provisions of the California Environmental Quality Act (CEQA). The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are carried out. CEQA is concerned with the significance of a proposed project's impacts. For example, a proposed development project may require the removal of some or all of a site's existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on the site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed.

This biological evaluation has been prepared in part to comply with the environmental review requirements for the State Revolving Fund (SRF) Loan Program administered by the California State Water Resources Control Board (SWRCB) for wastewater treatment systems operators. The SRF Loan Program is partially funded by the U.S. Environmental Protection Agency (EPA) and subject to federal environmental regulations, including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA), among others. The EPA has chosen to use CEQA as the compliance base for the SRF Loan Program (in addition to compliance with the federal ESA, NHPA and CAA), instead of the federal National Environmental Policy Act (NEPA). Collectively, the SWRCB refers to these additional requirements as "CEQA-Plus." The project must be carried out in compliance with each of the federal programs listed above, in addition to the requirements of CEQA.

Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures. According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest."

Specific project impacts to biological resources may be considered "significant" if they would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make a "mandatory findings of significance" if the project has the potential to

> Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory.

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 Threatened and Endangered Species

State and federal "endangered species" legislation has provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as "species of special status." Permits may be required from both the CDFG and USFWS if activities associated with a proposed project will result in the "take" of a listed species. "Take" is defined by the state of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFG and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.2 Migratory Birds

State and federal laws also protect most birds. The Federal Migratory Bird Treaty Act (16 U.S.C., scc. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.2.3 Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFG.

3.2.4 Wetlands and Other Jurisdictional Waters

Natural drainage channels and adjacent wetlands may be considered "Waters of the United States" (hereafter referred to as "jurisdictional waters") subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

- All interstate waters including interstate wetlands:

- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;

- All impoundments of waters otherwise defined as waters of the United States under the definition;

- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As recently determined by the United States Supreme Court in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision), channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. However, the U.S Supreme Court decisions *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* (referred together as the Rapanos decision) impose a "significant nexus" test for federal jurisdiction over wetlands. In June 2007, the USACE and Environmental Protection Agency (EPA) established guidelines for applying the significant nexus standard. This standard includes 1) a case-by-case analysis of the flow characteristics and functions of the tributary or wetland to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters and 2) consideration of hydrologic and ecologic factors (EPA and USACE 2007).

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by "ordinary

high water marks" on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction under the SWANCC decision, is regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

The California Department of Fish and Game has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these drainages are regulated by the CDFG via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

3.2.5 Local Ordinances

No habitat conservation plans (HCP) or natural community conservation plans (NCCP) or other local ordinances are in effect for this project. While a draft HCP had been underway in this region for some time, this effort is no longer moving forward. However, San Benito County adopted Ordinance 541 in 1988 to set and collect fees for financing the HCP and for San Joaquin kit fox protection measures. These fees are to be paid by the applicant as a condition of the issuance of a building permit. Monies paid through this ordinance do not provide take authorization under the federal or state Endangered Species Acts.

3.3 IMPACTS AND MITIGATIONS SPECIFIC TO THE PROJECT SITE

3.3.1 Phase I (*Project-level*): Ridgemark Wastewater Treatment and Recycled Water Improvements

Under the proposed project, flows from two existing wastewater treatment plants (RM I and RM II) would be combined and the treatment facilities upgraded to accommodate the combined flow and to meet regulatory wastewater treatment requirements. Most of the work would be within the existing boundaries of the RM I and RM II wastewater treatment facilities (ponds with aerators and various piping and pumps), and the new alternative would place pipelines within the golf course pathways, rather than in the streets of the development. A pipeline will be built up a

small hill from the main pump station to the RM I facility. This pipeline will cause temporary impacts to the ruderal grassland associated with the hill, and may require the removal of several relatively small, non-native trees and bushes. The bank should subsequently be stabilized by planting appropriate native species.

For the purposes of this analysis, it is assumed that any future proposal by the District will be consistent with the general locations of the construction sites as currently represented in the project description described in Section 1.1 of this report. Any appreciable difference in either scope or general location of the proposed project would require an additional impact assessment to ensure that unanticipated impacts to biotic resources are not likely to occur.

Due to the nature of this project, all impacts to natural resources will be of a temporary nature. As such, the project will result in less-than-significant impacts to these natural resources, as long as project implementation is carried out using best management practices, conducting certain portions of the project under the supervision of a biological monitor, and following the mitigation measures are briefly described in the following sections.

3.3.2 Phase II: (Program-Level) Salinity Management/Potable Water Supply Improvements

Phase II improvements are likely to be proposed within or near the Ridgemark residential development, Future improvements under Phase II (program-level), such as water treatment facilities and pipelines, would have generally similar environmental effects to Phase I improvements and could be mitigated in similar ways. For example, preconstruction surveys for special status species, such as burrowing owl and pond turtles, could be employed to avoid impacts to individuals in the Ridgemark area during construction. An exception to this is the evaporation ponds. Evaporation ponds could impact larger areas.

Since specific locations and the physical extent of potable water improvements are not known, the specific impacts of this phase of the *Ridgemark Wastewater Treatment and Recycled Water Improvements Project* cannot be addressed with certainty. Therefore, impacts and mitigation measures are addressed at a program level.

Potable water improvements in San Benito County were previously addressed in the *Groundwater Management Plan for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin Program EIR* (2004). The program level mitigation measures for possible impacts to biological resources apply to Phase II. Applicable program mitigation measures are summarized below (Please see Appendix C for the detailed measures).

Mitigation. Prior to initiating the potable water/salinity management project, an evaluation that includes the following information and analyses, at minimum, would be prepared:

As previously discussed, Phase II improvements are anticipated to occur over a period of up to 30 years and site specific environmental review and appropriate mitigation measures will be required prior to approval or implementation. For these reasons, impacts and project-level mitigation measures are not discussed further.

Program-Level Mitigation Measures to be included in the project – for Potable Water Supply/Salinity Management Impacts

Construction Impacts to Wetland Habitats

Avoidance and Minimization. New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to wetland habitats. If total avoidance is not possible, then wetland replacement will be completed.

Wetland Replacement. The wetland habitat that will be lost under any new projects would be functionally replaced in conformance with mitigation requirements of the responsible regulatory agencies. In-kind (the same wetland type) and on-site replacement of lost wetland habitats will be done where possible.

Permits. Prior to construction of any project element that may impact wetland habitats, the project proponent will apply for a Section 404 permit and Water Quality Certification from the U.S. Army Corps of Engineers and the Regional Water Quality Control Board. The project proponent will comply with the conditions of required permits.

Encroachment Into Riparian Buffer Zones. If a new project element would be located within 100 feet of the edge of a riparian corridor, and has encroachment impacts, mitigation in the form of habitat replacement or a functional equivalent will be completed.

Implement Hazardous Materials Spill Prevention and Best Management Practices. A hazardous material spill prevention plan will be developed and implemented for any work in or adjacent to the Pajaro River or its tributaries.

Construction Impacts to Red-legged Frogs and Other Aquatic Species

Avoidance. To the greatest extent feasible, construction of project elements will be planned to avoid habitat for aquatic species such as the red-legged frog. If construction will occur adjacent to habitat for aquatic species, impacts will be avoided through the following measures.

Minimization. All food-related trash items will be enclosed in sealed containers and removed daily from a project site to discourage the concentration of potential predators in habitat potentially occupied by California red-legged frogs.

Consultation with the USFWS. If take should occur of the California red-legged frog, than that would be permitted only through consultation with the USFWS.

Implement Hazardous Materials Spill Prevention and Best Management Practices.

See Implement Hazardous Material Spill Prevention and Implementation of Best Management Practices for Work in Stream Channels, above).

Construction Impacts to San Joaquin Kit Fox

Take Avoidance. Standard take-avoidance measures will be implemented following the 1999 U.S. Fish and Wildlife Service recommended guidelines for "take" of kit fox during construction.

Potential Construction Impacts to Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp are reported to occur in San Benito County. Any construction that would directly impact vernal pool habitat (including construction during the dry season) could negatively impact this species.

Avoid Habitat. New projects should be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to vernal marsh habitat.

Protect Water Quality.

Refer to Implement Hazardous Materials Spill Prevention, above.

Construction Impacts to California Tiger Salamanders and Their Habitat.

California tiger salamanders could occur in aquatic habitats, and in grassland and oak woodland habitats near aquatic habitat (including vernal pools) in San Benito County. Construction activities in these habitats could impact California tiger salamanders. The following mitigation measures will reduce impacts to California tiger salamanders and their habitat to less-than-significant levels.

Determine Presence/Absence. Prior to construction, appropriate level of surveys for California tiger salamanders (as determined in discussions with the U.S. Fish and Wildlife Service and the California Department of Fish and Game) will be conducted by a qualified biologist in any potential habitat for the species that could be affected by the Management Plan.

Avoidance. Project elements that will impact California tiger salamanders or their habitat will be redesigned to avoid all impacts. If avoidance is not possible, then Compensation for Habitat Loss and consultation with CDFG will be necessary. Avoidance measure could include hand excavation of burrows within 24-48 hours of ground disturbance and scoping with a fiber optic scope. Any animals found in burrows would be moved by an agency approved biologist to a burrow outside the work area and the Agencies would be contacted for further instruction.

Compensation for Habitat Loss. Replacement of aquatic, wetland, and/or upland habitat that provides breeding or aestivation habitat for California tiger salamanders will provided commensurate with project impacts.

Construction Impacts to Burrowing Owls and Burrowing Owl Habitat

Raptors, including owls, and their nests are protected under both federal and state laws, including the Migratory Bird Treaty Act and California Fish and Game Code section 3503.5. Burrowing

owls could occur in grassland habitat and margins of agricultural areas where ground squirrels are present. Construction-related disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by CDFG and the MBTA.

For projects in grassland habitat that could result in permanently displacement of burrowing owls (i.e., installation of evaporation ponds, constructed wetlands, or percolation ponds), protocol burrowing owl surveys will be conducted between April 15 and July 25. If burrowing owls are observed during surveys, the extent of burrowing owl habitat on the site will be delineated by a qualified ornithologist. Avoidance and/or habitat mitigation measures will be incorporated in future projects, as appropriate.

> **Avoidance.** Preconstruction surveys for Burrowing Owls will be completed in conformance with CDFG protocols, no more than 30 days prior to the start of construction in grassland habitat and margins of agricultural areas where habitat for Burrowing Owls is present.
>
> **Buffer Zones.** A 250-foot buffer, within which no new activity will be permissible, will be maintained between project activities and any nesting Burrowing Owls.
>
> **Relocation.** If construction will directly impact occupied burrows, eviction efforts outside the nesting season may be occur. No burrowing owls will be evicted from burrows during the nesting season (February 1 through August 31) without prior approval from CDFG.
>
> **Habitat Replacement.** For projects that would permanently impact occupied, burrowing owl habitat, habitat replacement may be required as part of a habitat mitigation plan and mitigation agreement with the CDFG. Habitat replacement could include protection of the habitat replacement area in perpetuity by a conservation easement or fee title acquisition. Burrowing owl replacement habitat (for projects in northern San Benito County) should be identified within the northern San Benito County or southern Santa Clara County area.

Construction Impacts to Large Nesting Colonies of Tricolored Blackbirds

Large tricolored blackbirds nesting colonies are present in wetland habitats in northern San Benito County. This species could be impacted by construction activities during the nesting season (March 1 to July 1). Construction close to active colonies could result in desertion of nests.

Preconstruction Surveys and Avoidance. Prior to construction during the breeding season (March 1 to July 1) within 250 feet of potential nesting habitat for Tricolored Blackbirds (wetland habitat with tall vegetation nearby), preconstruction surveys will be conducted. If Tricolored Blackbirds are present, construction will be delayed until after the breeding season.

Further program-level mitigation measures to be applied if a pipeline crossing or stormwater outfall is required as part of Phase II (potable water project/salinity management project)

Construction Impacts to Riparian Habitats

Avoidance and Minimization. New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to riparian habitats. If avoidance is not possible, then riparian habitat replacement will be required.

Riparian Habitat Replacement. Permanent impacts to vegetation within riparian habitats are typically mitigated at ratios based on the quality of the habitat to be impacted.

Permits. Prior to construction within the bed and banks of creeks, rivers, or lakes, the project proponent will apply for and obtain a Streambed Alteration Agreement from the California Department of Fish and Game.

Construction Impacts to Aquatic Habitat and Species

Implementation of Best Management Practices For Work in Stream Channels. Implementation of Best Management Practices described below will reduce potential impacts to aquatic species to a less-than-significant level.

Impacts to Steelhead

Steelhead could occur in the San Benito River, Pacheco Creek, and any other unobstructed tributary of the Pajaro River. Construction activities that will occur in stream habitat (e.g. those involving diversion structures) could directly impact steelhead. If channel diversions occur, steelhead could become stranded, and activities in channels could result in direct take of individuals. In addition, construction activities could result in degradation of water quality (e.g. through leaching cement altering stream pH or increasing sedimentation).

Avoidance. Schedule construction activities where water is present in tributaries of the Pajaro River to the dry season (June 1 to October 31), when steelhead are least likely to be present.

Minimization during Construction. Because it is possible that juveniles could be moving downstream during any time of year, including the dry season, these measures should ensure that movement of steelhead is not prevented by any water diversion structures used during construction, regardless of when construction occurs. Ideally, the live stream channel will be maintained and protected (e.g. by a structure covering the channel, and coffer dams around construction areas). If the live channel cannot be maintained, water would be diverted through construction sites by way of an open ditch (rather than a pipe) connecting the portions of the channel immediately upstream and downstream from the site.

Minimization based on Project Design (Reduce Barriers to Movement). The placement of diversion structures or other hardscape within and immediately adjacent to the low flow channel of any tributary could cause an impediment to migration for steelhead. Potential in-stream structures will be designed in such a way as to not encroach upon the low flow channel and be designed to avoid hardscape that could result in significant eddies within the low flow channel.

Consultation with National Marine Fisheries Service. Consultation with National Marine Fisheries Service will be completed for any new project activities that could affect steelhead such as dewatering creeks or rivers, or any in-stream construction.

3.4 LOSS OF HABITAT FOR SPECIAL STATUS PLANTS

Potential Impacts. Nineteen special status vascular plant species are known to occur in the general project vicinity. All of these species are absent from the study as suitable habitat for them is completely lacking, mainly because the study area supports a gated, residential development with golf course, and also because soils, wetlands, vernal pools and other habitat factors required to support these plant species are absent. Regional populations of these species would not be affected by project implementation. Therefore, state and federal laws protecting special status plants would not be relevant to this project.

Mitigation. Mitigation measures are not warranted for loss of habitat for special status plants.

3.5 LOSS OF HABITAT FOR SPECIAL STATUS ANIMALS

Potential Impacts. Twenty-four special status animal species occur, or once occurred, in the region of the study area (Table 2). Of those, 10 would be absent or unlikely to occur on the site due to unsuitable habitat conditions. These include steelhead, coast range newt, foothill yellow-legged frog, San Joaquin coachwhip, western yellow-billed cuckoo, tricolored blackbird, bank swallow, least Bell's vireo, yellow-breasted chat, San Joaquin kit fox and ringtail. Eventual project implementation would have no effect on these species because they are absent or unlikely to occur as the potential impact area does not support suitable habitat for them.

Species that might rarely or occasionally occur on the site as transients, occasional foragers, or winter migrants include northern harrier, merlin, and western mastiff bat. The site does not provide regionally important foraging habitat and no breeding habitat for these species. Migrant and transient species pass through or over many types of habitats en route to breeding or wintering habitat. Project implementation will not affect the marginal foraging habitat within the potential impact area or greater study area for these species, and therefore, project implementation would have no effect on them.

Mitigation. Mitigation measures are not warranted for loss of habitat for the special status animals listed above.

Special status animal species that are known to occur within the greater study area, but not within the potential impact area, include the California tiger salamander (CTS), California red-legged frog (CRLF), and western spadefoot (WSF). Potential impacts to these aquatic species are discussed below.

3.5.1 Impacts to Individual California Tiger Salamanders, California red-legged frog, Western Spadefoot, and Their Habitat

Potential Impacts. As noted previously, the California tiger salamander, California red-legged frog and western spadefoot are presumed present in the mitigation pond at the terminus of

Paullus Drive. Due to the fact this mitigation pond is outside the proposed area of work, and the fact the mixing ponds within the potential impact area are unsuitable habitat for these species, project implementation is not expected to negatively impact these species. Furthermore, any potential indirect construction impacts related to the project will be temporary in nature. To be prudent, the following mitigation measures are proposed to ensure an errant individual is not harmed during project implementation.

Mitigation. The following mitigations are designed to reduce project impacts to a less-than-significant level under CEQA. These mitigations are designed to avoid and minimize impacts where possible and then compensate for any residual impacts.

Mitigation Alternative 1: Avoidance. Impacts to special status aquatic species and their habitat should be avoided to the maximum extent practicable. The proposed project will not be conducting any work within approximately 0.25 miles of the mitigation pond. As such, the presumed breeding habitat for special status aquatic species will be avoided by the project.

Mitigation Alternative 2: Minimization. Implementation of the following measures should be taken during project implementation to avoid potential take of individual special status aquatic species.

- Exclusion fencing (e.g., silt fencing) should be erected around construction zones to minimize the potential of individual CTS, CRLF and/or WSF dispersing into work areas during construction and should be maintained and remain in place for the duration of project implementation. Any aquatic species detected during these procedures will be moved to suitable habitat by a biologist possessing USFWS authorization to handle these species, and the agency would be notified.

- Should the golf course pipeline alternative route be executed, a pre-construction survey should be conducted within 2 weeks of ground disturbance and all small mammal burrows flagged. Within 24 to 48 hours prior of ground disturbance, burrows will be hand excavated and then explored with a fiber optic scope. Any animals found will be moved by an agency approved biologist to a burrow outside the work area and the Agencies will be notified for further instruction.

- A qualified onsite monitor should be present during the initial site grading within 0.25 miles of the breeding pond. The monitor would only need to monitor the site during the rough grading activities. Monitoring could cease once the build-out site has been completely denuded of habitats.

3.5.2 Impacts to Western Pond Turtle and Their Habitat

Potential Impacts. No western pond turtles have been observed within the mixing or wastewater treatment ponds within the potential impact areas of the proposed project, nor any where else within the greater study area. Therefore, impacts to individual western pond turtles or their habitat is not expected to occur due to project implementation. Nonetheless, construction activities that caused injury or death to an errant pond turtle would be considered a significant impact under CEQA. To be prudent, the following mitigation measures should be followed to

result in a less-than-significant effect to the species should they be found within potential impact areas.

Avoidance. Avoidance of a sensitive resource is usually considered the preferred mitigation for any project. The project has been generally designed to avoid impacts to this species.

Minimization. The project should implement the following measures:

- Species-specific pre-construction surveys should be conducted 48-hours prior to initiation of construction activities within the treatment and mixing ponds;

- The placement of fine mesh black fencing between the construction area and the edge of the ponds, where possible, to keep turtles away from heavy equipment;

- The training of the construction crew (e.g., tailgate session) by a qualified biologist to ensure that they are not only aware of the protective measures they are to employ in the unlikely event a turtle is found onsite, but also understand the purpose of such measures;

- Should a turtle be found during the pre-construction surveys, a qualified biological monitor should be present during construction when work is conducted within close proximity of the pond(s) to ensure that the project does not inadvertently injure or kill an individual western pond turtle.

- Should a turtle be found by the construction crew at any time during construction activities, a qualified biologist should be contacted immediately. The biologist would move the turtle to a safe location and submit a sighting occurrence to the CDFG.

3.5.3 Impacts to Burrowing Owls

Potential Impacts. Only one burrow of suitable size for the burrowing owl was detected within the study area during the March and April 2008 site visits. This was an abandoned badger burrow located adjacent to Pond 6, and it was occupied by a burrowing owl (evidenced by white wash, pellets and feathers). Implementation of the proposed project may result in a temporary loss of marginal habitat for the burrowing owl. Construction activities that adversely affect the nesting success of or result in mortality of individual owls would constitute a violation of state and federal laws (see Section 3.2.3) and would be considered a significant impact under CEQA. Therefore, to be prudent, the project proponent should conduct the following mitigation measures to reduce potential effects to individual burrowing owls to a less-than-significant level.

Mitigation. A qualified biologist should conduct pre-construction surveys for burrowing owls within 250 feet of work areas within 30 days of the onset of ground disturbance in all areas of the project that have the potential to support suitable habitat for the burrowing owl (e.g., ruderal grasslands and any area that may support ground squirrel activity in the future). These surveys should be conducted in a manner consistent with accepted burrowing owl survey protocols. If pre-construction surveys determine that burrowing owls occupy the site during the non-breeding season (1 September through 31 January), then a passive relocation effort (i.e., blocking burrows with one-way doors and leaving them in place for a minimum of three days) may be necessary to ensure that the owls are not harmed or killed during construction. Once it has been determined

that owls have vacated the site, the burrows can be collapsed, and ground disturbance can proceed.

If burrowing owls were detected on the site or immediately adjacent lands (i.e., within 250 feet of the site boundary) during the breeding season (1 February through 31 August), a construction-free buffer of 250 feet should be established around all active owl burrows. The buffer areas should be enclosed with temporary fencing, and construction equipment and workers should not enter the enclosed setback areas. Buffers should remain in place for the duration of the breeding season or until it has been determined by a qualified biologist that chicks have fledged and are independent of their parents. After the breeding season, passive relocation of any remaining owls may take place as described above.

Because potential impacts to owl habitat from pipeline installation (and possible excavation for soil borrow) will be temporary, no offsite mitigation is warranted for loss of habitat for the burrowing owl.

3.5.4 Impacts to San Joaquin Kit Foxes

Potential Impacts. The entire potential impact area consists of a residential development (with associated roadways), a golf course, treatment ponds, and a small amount of ruderal grassland. No ground squirrel burrows were observed within the area during the March and April 2008 site visits. Therefore, suitable burrows ($\geq$ 4 inches in diameter for at least 2 feet) for the San Joaquin kit fox are currently absent from the potential impact areas. Although protocol-level surveys including 100% visual coverage of the site were not conducted for this species, there is sufficient evidence to determine that typical denning habitat for the fox is absent from the study area.

Project implement would result in a less-than-significant loss of habitat for the San Joaquin kit fox. However, it is possible, though highly unlikely, that an individual kit fox could move onto the site incidentally prior to construction. In such a case, construction-related activities could result in harm or death to individual kit fox, should they occur on the site. This would be considered a significant adverse impact.

Mitigation. In the highly unlikely event a San Joaquin kit fox were to wander onto the site at the time of project implementation, to be prudent the District should implement the protection measures outlined in the "U.S. Fish and Wildlife Service standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance," provided in Appendix C and summarized below, when work will occur within or adjacent to ruderal grasslands, or other areas that may support suitable denning habitat (e.g., burrows $\geq$ 4" for a length of at least 2"). The greater study area and potential impact areas do not currently support such denning habitat. While these recommendations were developed by the USFWS Sacramento office, they would be applicable to this project site as well.

- Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any project activity likely to impact the San Joaquin kit fox. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on the project site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS shall be contacted immediately to determine the

best course of action. If no kit fox activity is detected, a written report shall be submitted to the USFWS within five days after completion of the surveys.

- Permanent and temporary construction activities and other types of project-related activities should be carried out in a manner that minimizes disturbance to kit foxes, should their presence be detected on the site during pre-construction surveys. Minimization measures include, but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash.

- The Ventura field office of the USFWS and the Fresno field office of the CDFG will be notified in writing within three working days in case of the accidental death or injury to a San Joaquin kit fox during project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.

Implementation of these measures would minimize the risk that construction activities during site development would result in mortality to individual kit foxes.

3.5.5 Impacts to American Badger

Potential Impacts. Impacts to the American badger would be similar to those for the burrowing owl. There was only one badger burrow found within the study area, and due to the fact badgers dig new burrows nearly daily throughout the summer, it may be a while before a badger would visit the area again. The burrow was found in the area of Pond 6 which may be used as a borrow pit for the project. Therefore, it is possible that project implementation could have a temporary negative affect on an American badger or its habitat.

Mitigation. Pre-construction surveys conducted for raptors and specifically for burrowing owls should also be used to determine the presence or absence of badgers within the area of Pond 6, RM I and ruderal grasslands located within the potential impact area. In the unlikely event that an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a construction-free buffer of up to 300 feet or a suitable distance specified by the resource agencies (i.e., CDFG) should be established around the den. Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor should be present onsite during construction activities to ensure the buffer is adequate to avoid direct impact to individuals or nest abandonment. The onsite monitor would be necessary until it is determined that young are of an independent age and construction activities would not harm individual badgers. Once it has been determined that badgers have vacated the site, the burrows could be collapsed or excavated, and ground disturbance could proceed. Because potential impacts to badger habitat would be temporary in nature, no offsite mitigation is warranted for loss of habitat for the badger. Following these mitigation measures would result in a less-than-significant impact to the American Badger.

3.6 DISTURBANCE TO NESTING RAPTORS

Potential Impacts. Although no stick nests were observed during the March and April 2008 surveys, a pair of red-shouldered hawks was observed near the riparian area of the study area. One stick nest was observed outside of the study area to the south of South Road, approximately 1/8 mile from the Ridgemark development. As discussed previously, the numerous mature trees located within the study area offer potential nesting habitat for tree-nesting raptors. If a raptor, regardless of its federal or state status, were to nest on or adjacent to the site prior to construction, construction activities could result in the abandonment of active nests or direct mortality to these birds. Construction activities that adversely affect the nesting success of raptors or other special status birds or result in mortality of individual birds constitute a violation of state and federal laws (see Section 3.2.3) and would be considered a significant impact under CEQA.

Mitigation. A qualified biologist should conduct a pre-construction survey for tree- and ground-nesting raptors throughout the site and in all trees within 250 feet of the site no more than 30 days prior to the onset of ground disturbance, if such disturbance will occur during the breeding season (1 February through 31 August). Pre-construction surveys should be used to determine the presence or absence of nesting raptors. If nesting raptors are detected during the survey within 250 feet of proposed project-related development activities, a suitable construction-free buffer should be established around all active nests. The precise dimension of the buffer (up to 250 feet) would be determined at that time and may vary depending on location and species. Buffers should remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary for most nesting raptors, including all tree-nesting raptors, as they are expected to abandon their roosts during construction.

Implementation of the above measures would fully mitigate any impacts to tree- and ground-nesting raptors to a less-than-significant level.

3.7 DISTURBANCE TO NESTING WATERFOWL

Potential Impact. As noted in Section 2.1.2, a variety of water fowl utilize the man made water features of the site, particularly at RM II. Species observed at these water features included Canada goose, mallard, ruddy duck, lesser scaup, bufflehead, American coot, and black-necked stilt. It is likely that the Canada goose and mallard breed within the study area, and it is possible that black-necked stilts could breed on site. The loss of this man-made feature will not result in a significant loss of nesting habitat for water birds regionally given the relative small size and artificial nature of this feature, and the fact that this region is not considered an important breeding area for water birds in general. However, construction activities that adversely affect nesting success of waterfowl or result in mortality of individual birds (e.g., dewatering during the while there are fledglings) would constitute a violation of state and federal laws (see Section 3.2.2) and would be considered a significant impact under CEQA. Therefore, the following mitigation has been designed to not harm, harass, injury or kill individuals during the nesting season as the loss of nesting habitat is considered less than significant.

Mitigation. A qualified biologist should conduct a pre-construction survey for nesting waterfowl within 100 feet of man made water features no more than 30 days prior to the onset of ground disturbance, if such disturbance will occur during the breeding season (generally 1 March through 30 June). Pre-construction surveys should be used to determine the presence or absence of nesting water fowl. If nesting of such birds is detected during the survey within 100 feet of proposed project-related development activities, a suitable construction-free buffer should be established around all active nests. The precise dimension of the buffer (up to 100 feet) would be determined at that time and may vary depending on location and species. Buffers should remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary for waterfowl as they are expected to abandon their roosts during construction.

Implementation of the above measures would fully mitigate any impacts to nesting waterfowl to a less-than-significant level.

3.7.1 Loss of Habitat for Native Wildlife

Potential Impacts. Substantial loss of habitat is not expected to occur as a result of project implementation, which will occur mainly at existing wastewater facilities (i.e., RM I, RM II, Pond 6, and mixing ponds) and within roadways. Any impacts are expected to be temporary. Therefore, the loss of habitat for native wildlife resulting from the proposed project would constitute a less-than-significant impact.

Mitigation. Mitigation measures are not warranted for loss of habitat for native wildlife.

3.7.2 Interference with the Movement of Native Wildlife

Potential Impacts. The study and potential impact areas occur within a gated, residential community. As such, these areas do not provide important movement corridors for wildlife, though some species do move through the site, and are expected to continue to do so after project implementation. Therefore, the project would result in a less-than-significant impact on the movements of native wildlife.

Mitigation. Mitigation measures are not warranted for interference with the movement of native wildlife.

3.8 DISTURBANCE TO WATERS OF THE UNITED STATES OR RIPARIAN HABITATS

Potential Impacts. No wetlands or other jurisdictional waters occur within the potential impact area. Therefore, state and federal regulations protecting jurisdictional waters would not be relevant to project implementation. The project would also have no effect on riparian habitats or other sensitive natural communities, as these habitats do not occur within the potential impact area.

Mitigation. Mitigation measures are not warranted for disturbance to waters of the United States or riparian habitats.

3.9 DEGRADATION OF WATER QUALITY IN SEASONAL DRAINAGES, STOCK PONDS, AND DOWNSTREAM WATERS

Potential Impacts. Extensive grading often leaves the soils of construction zones barren of vegetation and, therefore, vulnerable to erosion. Eroded soil can be carried as sediment in seasonal creeks to be deposited in creek beds and adjacent wetlands. The site itself and the surrounding areas are comprised of fairly level terrain, with the exception of a portion of Ruderal Grassland I (Figure 2). The hill associated with Ruderal Grassland I does not drain to any downstream waters. Therefore, the potential for erosion and the degradation of water quality in local creeks is negligible.

Furthermore, the District is expected to comply with the provisions of a County grading permit, including standard erosion control measures that employ best management practices (BMPs). Compliance with the above permit(s) should result in no impact to water quality in seasonal creeks, reservoirs, and downstream waters from the proposed project and should not result in the deposition of pollutants and sediments in sensitive riparian and wetland habitats.

Mitigation. Mitigation measures are not warranted for degradation of water quality in seasonal drainages, stock ponds, or downstream waters.

3.10 REMOVAL OF TREES

Potential Impacts. A formal tree inventory was not conducted onsite, though several small, non-native trees and bushes may be removed from Ruderal Grassland I (Figure 2) to accommodate a new pipeline. No other trees are expected to be removed as a result of project implementation. However, there are landscape trees along the roadways and throughout the golf course, and it is possible that several trees may have to be removed or impacted due to project implementation. The project intends to avoid removal of any tree resources to the degree feasible. Nonetheless, the loss of several (less than 12) non-native trees would be considered a less than significant impact given the abundance of landscape trees associated with the region of the project..

Mitigation. No mitigation is warranted for the loss of less than 12 non-native landscape trees.

3.11 LOCAL ORDINANCES OR HABITAT CONSERVATION PLANS

Potential Impacts. No local ordinances, HCPs, or NCCPs are in effect for this project. While a draft HCP had been underway in this region for some time, this effort is no longer moving forward and, as such, the project will not conflict with an HCP/NCCP. Therefore, the proposed project would not be impacted by any local policies related to biological resources.

Mitigation. No mitigation measures are warranted for local ordinances or habitat conservation plans.

4 LITERATURE CITED

Anderson, J.D. 1968. A comparison of the food habits of *Ambystoma macrodactylum sigillatum, Ambystoma macrodactylum croceum,* and *Ambystoma tigrinum californiense*. Herpetologica 24:273–284.

Austin, C. C. and Shaffer, H. B. (1992). Short-, medium- and longterm repeatability of locomotor performance in the tiger salamander *Ambystoma californiense. Funct. Ecol.* **6**, 145–153.

Banfield, A. W. F. 1974. *The mammals of Canada*. Toronto, ON: University of Toronto Press. 438 p.

Barry, S. J., and H. B. Shaffer. 1994. The status of the California tiger salamander (*Ambystoma californiense*) at Lagunita: a 50-year update. Journal of Herpetology 28:159-164.

Bowler, J.K. 1977. Longevity of reptiles and amphibians in North American collections as of 1 November 1975. Society for the Study of Amphibians and Reptiles, Miscellaneous Publications, Herpetological Circular (6):iv+32 p.

Brown, H.A. Embryonic temperature adaptations and genetic compatibility of two allopatric populations of the spadefoot toad, Scaphiopus hammondii. Evolution 21(4):742-761.

Burgess, R.C., Jr. 1950. Development of spade-foot toad larvae under laboratory conditions. Copeia, 1950(1):49-51.

Bury, R. B. 1972a. Status report on California's threatened amphibians and reptiles.California Department of Fish and Game, Inland Fisheries Administrative Report (72-2):1-31.

Bury, R. B. 1972b. Habits and home range of the Pacific pond turtle, Clemmys marmorata. PhD Dissertation, University of California, Berkeley, California.

Bury, R. B. 1986. Feeding ecology of the turtle, *Clemmys marmorata.* Journal of Herpetology 20(4):515-521.

Buskirk, J. R. 1992. An overview of the western pond turtle, *Clemmys marmorata.* pp. 16-23 In: K. R. Beaman, F. Caporaso, S. McKeown, and M. Graff (editors), Proceedings of the first international symposium on turtles and tortoises: Conservation and captive husbandry. California Turtle and Tortoise Club, Van Nuys, California.

California Department of Fish and Game. 1999. 1999 California sport fishing regulations. Department of Fish and Game, Sacramento, California. 64 p.

California Department of Fish and Game. 2007. California fish and game code. Gould Publications. Binghamton, NY.

_____. 2007. Annual report on the status of California state listed threatened and endangered animals and plants. The Resources Agency, Sacramento, CA.

_____. 2008. California natural diversity database. The Resources Agency, Sacramento, CA.

California Native Plant Society. 2001. Inventory of Rare and Endangered Vascular Plants of California (6th Edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, CA.

Childs, H.E., Jr. 1953. Selection by predation on albino and normal spadefoot toads. Evolution. 7(30):228-233.

Coats Consulting. 1997. Special Status Species Assessment Including Surveys for San Joaquin Kit Fox and Burrowing Owl. Fairview Corners Specific Plan. Brian Mori Biological Consulting Services. Watsonville, CA.

EPA and USACE. 2007. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* & *Carabell v. United States*. Environmental Protection Agency and U.S. Army Corps of Engineers. Washington, D.C.

Feaver, P.E. 1971. Breeding pool selection and larval mortality of three California amphibians: *Ambystoma tigrinum californiense* Gray. *Illya regilla* Baird and Girard, and Scaphiopus hammondii Girard. Unpublished M.A. Thesis, Fresno State College, Fresno, California. Vii+58 p.

Feldman, M. 1982. Notes on reproduction in *Clemmys marmorata.* Herpetological Review 13(1):10-11.

Fisher, R.N., and H.B. Shaffer. 1996. The decline of amphibians in California's Great Central Valley. Conservation Biology 10(5):1387-1397.

Golightly, Jr., R.T. and R.D. Ohmart, 1983. Water economy of two desert canids: Coyote and Kit fox. Journal of Mammalogy 65:51-58.

Goodman, R.H., Jr. 1997a. The biology of the southwestern pond turtle (*Clemmys marmorata pallida*) in the Chino Hills State Park and the West Fork of the San Gabriel River. Master's Thesis, California State Polytechnic University, Pomona.

Goodman, R.H., Jr. 1997b. Occurrence of double clutching in the southwestern pond turtle, *Clemmys marmorata pallida* in the Los Angeles Basin. Chelonian Conserv. Biol. 2:419-420.

Grinnell, J., J. S. Dixon, and J. M. Linsdale. 1937. Fur-bearing mammals of California. 2 Vols. Univ. California Press, Berkeley.

Hayes, M. P., and M. R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog *(Rana aurora draytonii)* and the foothill yellow-legged frog *(Rana boylii):* Implications for management. pp. 144-158 In: R. C. Szaro, K. E. Severson, and D. R. Patton (technical coordinators), Proceedings of the symposium on the management of amphibians, reptiles, and small mammals in North America. United States Department of Agriculture, Forest Service, General Technical Report RM-166.

Hayes, M. P., and M. R. Tennant. 1986. Diet and feeding behavior of the California redlegged frog, *Rana aurora draytonii* (Ranidae). The Southwestern Naturalist 30(4):601-605.

Hayes, M. P., and J. Warner. 1985. Life history notes: Rana catesbeiana, food. Herpetological Review 16(4):109.

Holland, D. C. 1985a. An ecological and quantitative study of the western pond turtle *(Clemmys* marmorata) in San Luis Obispo County, California. MA Thesis, Fresno State University, Fresno, California.

Holland, D. C. 1985b. Life history notes: *Clemmys marmorata,* feeding. Herpetological Review 16(4):112-113.

Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency.

Jennings, M.R. 1996a. Natural history notes: *Ambystoma californiense* (California tiger salamander). Burrowing ability. Herpetological Review 27:194.

Jennings, M.R. 1996b. Status of amphibians. Pp. 921–944. In Sierra Nevada Ecosystem Project: Final Report to Congress, Volume II, Assessments and scientific basis for management options. University of California, Davis, Centers for Water and Wildland Resources, Davis California.

Jennings, M.R. 1988a. *Rana onca*. Pp. 417.1–417.2. Catalogue of American Amphibians and Reptiles. Society for the Study of Amphibians and Reptiles, St. Louis, Missouri.

Jennings, M.R. 1988b. Natural history and decline of native ranid frogs in California. Pp. 61–72. *In* De Lisle, H.F., P.R. Brown, B. Kaufman and B.M. McGurty (Eds.), Proceedings of the Conference on California Herpetology. Southwestern Herpetologists Society, Special Publication, Number 4, Van Nuys, California.

Jennings, M.R., and M.P. Hayes. 1994. Amphibian and reptile species of special concern of California. Final Report to the California Department of Fish and Game. Inland Fisheries Division, Rancho Cordova, California, under contract number 8023. iii+225 p.

Kurta, A. 1995. *Mammals of the Great Lakes Region*. Ann Arbor: University of Michigan Press.

Lindzey, Frederick G. 1978. Movement patterns of *badgers in northwestern Utah*. Journal of Wildlife Management. 42(2): 418-422.

Livezey, R. L. 1959. The egg mass and larvae of Plethodon elongatus Van Denburgh. Herpetologica 15(1):41-42.

Livezey, R.L. and A.H. Wright. 1947. A synoptic key to the salientian eggs of the United States. American Midland Naturalist 37:179–222.

Long, C.A. 1973. *Taxidea taxus*. Mammal. Species. No. 26. 4pp.

Long, C. 1999. American badger: Taxidea taxus. Pp. 177-179 in D.E. Wilson, S. Ruff, eds. *The Smithsonian Book of North American Mammals*. Washington, D.C.: Smithsonian Institution Press.

Mayer, K. E., and W. F. Laudenslayer. 1988. A guide to wildlife habitats of California. Calif. Dep. For. Fire Prot., Sacramento. 166pp.

Morey, S. R.. 1994. Age and size at metamorphosis in spadefoot toads: a comparative study of adaptation to uncertain environments. Unpublished Ph.D. Dissertation. University of California, Riverside. xx+235 p.

Morey, S. R. 1998. Pool duration influences age and body mass at metamorphosis in the western spadefoot toad: implications for vernal pool conservation. Pages 86-91 In: Carol W. Witham, Ellen T. Bauder, Denton Belk, Wayne R. Ferren, Jr., and Robert Ornduff (editors). Ecology, Conservation, and Management of Vernal Pool Ecosystems—Proceedings From a 1996 Conference. California Native Plant Society. Sacramento, California. V+285 p.

Morey, S.R., and D.A. Guinn. 1992. Activity patterns, food habits, and changing abundance in a community of vernal pool amphibians. Pages 149-158 In: Daniel F. Williams, Sheila Byrne, and Theodore A. Rado (editors). Endangered and sensitive species of the San Joaquin Valley, California; their biology, management, and conservation. The California Energy Commission, Sacramento, California, and the Western Section of the Wildlife Society. Xv+388 p.

Myers, G. S. 1944. California records of the western spade-foot toad. Copeia 1944(1):58.

Natural Resource Conservation Service. 2007. Soil survey of San Benito County, California, USDA. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Petranka, J. 1998. Salamanders of the United States and Cananda. Washington D.C.: Smithsonian Institute Press.

Pickwell, Gayle. 1947. Amphibians and reptiles of the Pacific States. Stanford, CA. Stanford University Press.

Reese D.A., Welsh H.H. Jr., 1998, Comparative demography of *Clemmys marmorata* populations in the Trimity river of California in the context of Dam-induced alterations. J. Herpetol. 32, 505-515.

Ruibal, R. 1959. Ecology of a brackish water population of Rana pipiens. Copeia 1959(4):315-322.

Sargeant, Alan B.; Warner, Dwain W. 1972. *Movements and denning habits of a badger*. Journal of Mammalogy. 53(1): 207-210.

Sawyer J. O. Keeler-Wolfe T. 1995. *A manual of California vegetation* California Native Plant Society, Sacramento, California, USA.

Stebbins, R.C. 1951. Amphibians of western North America. University of California Press, Berkeley, California. ix+539p.

Stebbins, R. C. 1972. Amphibians and reptiles of California. California Natural History Guides (31). University of California Press. Berkeley, Los Angeles, and London. 152 p.

Stebbins, R. C. 1985. A field guide to western reptiles and amphibians. Second edition, revised. Houghton Mifflin Company. Boston, Massachusetts. Xiv+336 p.

Storer, T.I. 1925. A synopsis of the amphibian of California. University of California Publications in Zoology. 27:1-342.

Storer, T.I. 1930. Notes on the range and life-history of the Pacific fresh-water turtle, *Clemmys marmorata*. University of California Publications in Zoology 35(5):429-441.

Twitty, V.C. 1941. Data on the life history of *Ambystoma tigrinum californiense* Gray. Copeia 1941:1–4.

U.S. Corps of Engineers. 1987. Corps of Engineers wetlands delineation manual. Department of the Army.

U. S. Fish and Wildlife Service. 2008. Endangered and threatened wildlife and plants.

Wetland Training Insitute, Inc. 1991. Federal Wetland Regulation Reference Manual. B.N. Goode and R.J. Pierce (eds.) WTI 90-1. 281pp.

Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White. Ed. 1988. California's wildlife, volume I, amphibians and reptiles. Department of Fish and Game. Sacramento, CA. 272 pp.

_____. 1988. California's wildlife, volume II, birds. Department of Fish and Game. Sacramento, CA. 731 pp.

_____. 1988. California's wildlife, volume III, mammals. Department of Fish and Game. Sacramento, CA. 407 pp.

APPENDIX A: VASCULAR PLANTS OF THE STUDY AREA

The plants species listed below were observed within the Ridgemark study area during the field surveys conducted by Live Oak Associates in March and April 2008. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
+/- - Higher/lower end of category
NI - No investigation

ASTERACEAE –- Sunflower Family		
Baccharis pilularis	Coyote brush	UPL
*Centaurea solstitialis**	Yellow star thistle	UPL
Heterotheca grandiflora	Telegraph weed	UPL
BRASSICACEAE – Mustard Family		
*Hirschfeldia incana**	Summer mustard	UPL
CONVOLVULACEAE – Morning-Glory Family		
*Convolvulus arvensis**	Field bindweed	UPL
EUPHORBIACEAE – Spurge Family		
Eremocarpus setigerus	Turkey mullein	UPL
FABACEAE – Legume Family		
*Medicago polymorpha**	Burclover	UPL
GERANIACEAE – Geranium Family		
*Erodium botrys**	Broadleaf filaree	UPL
*Geranium dissectum**	Wild geranium	UPL
MALVACEAE – Mallow Family		
*Malva sp.**	Mallow	UPL
ONAGRACEAE – Evening Primrose Family		
Epilobium sp.	Willowherb	-
PLANTAGINACEAE – Plantain Family		
*Plantago lanceolata**	English plantain	FAC-
POACEAE - Grass Family		
Avena sp.	Wild oat	-
*Bromus diandrus**	Ripgut brome	UPL
*Bromus hordeaceus**	Soft chess	FACU-

*Hordeum marinum ssp. gussoneanum**	Mediterranean barley	FAC
Phalaris californica	Canary grass	FAC
*Triticum aestivum**	Common wheat	UPL

TROPAEOLACEAE – Nasturtium Family

*Nasturtium majus**	Garden nasturtium	-

* Introduced non-native species

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE STUDY AREA

The species listed below are those that may reasonably be expected to use the habitats of the Ridgemark study area routinely or from time to time. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed in or adjacent to the study area in March and/or April 2008 have been noted with an asterisk.

CLASS MALACOSTRACA (Crustaceans)
ORDER DECAPODA (Crayfish, lobster, crab, prawn, shrimp)
FAMILY: ASTACOIDAE (Crayfish)
Louisiana red-swamp crayfish *Procambarus clarkii*

CLASS: ACTINOPTERYGII
ORDER: CYPRINODONTIFORMES (Rivulines, Killifishes, and Livebearers)
FAMILY: POECILIIDAE (Livebearers)
*Mosquitofish *Gambusia affinis*
ORDER: PERCIFORMES (Perch, Sunfish, Basses, Groupers, and Relatives)
FAMILY: CENTRARCHDAE (Sunfish, Bass, Crappies, and Relatives)
*Largemouth Bass (*Micropterus salmoides*)
ORDER SILURIFORMES (Catfishes)
FAMILY: ICTALURIDAE
(Bullhead catfishes and N. American freshwater catfishes)
*Freshwater catfish *unknown*

CLASS AMPHIBIA (Amphibians)
ORDER CAUDATA (Salamanders)
FAMILY: AMBYSTOMATIDAE (Mole Salamanders and Relatives)
California tiger salamander *Ambystoma californiense*
FAMILY: PLETHODONTIDAE (Lungless Salamanders)
Ensatina *Ensatina eschscholtzii*
ORDER ANURA (Frogs and Toads)
FAMILY: PELOBATIDAE (Spadefoot Toads)
Western spadefoot *Spea hammondii*
FAMILY: BUFONIDAE (True Toads)
Western toad *Bufo boreas*
FAMILY: HYLIDAE (Treefrogs and Relatives)
Pacific treefrog *Pseudacris regilla*
FAMILY: RANIDAE
California red-legged frog *Rana draytonii*
Bullfrog *Rana catesbeiana*

CLASS REPTILIA (Reptiles)
ORDER TESTUDINES (Turtles)
FAMILY: EMYDIDAE (Box and Water Turtles)
Western pond turtle *Actinemys marmorata*

ORDER SQUAMATA (Lizards and Snakes)
SUBORDER: LIZARDS
FAMILY: PHRYNOSOMATIDAE
*Western fence lizard — *Sceloporus occidentalis*
FAMILY: ANGUIDAE (Alligator Lizards and Relatives)
Southern alligator lizard — *Elgaria multicarinata*
SUBORDER: SERPENTES
FAMILY: COLUBRIDAE (Colubrids)
Gopher snake — *Pituophis catenifer catenifer*
Common garter snake — *Thamnophis sirtalis*
Night snake — *Hypsiglena torquata*
FAMILY: VIPERIDAE (Vipers)
Western rattlesnake — *Crotalus viridis*

CLASS AVES (Birds)
ORDER CICONIIFORMES (Herons, Storks, Ibises and Relatives)
FAMILY: CATHARTIDAE (New World Vultures)
Turkey vulture — *Cathartes aura*
ORDER ANSERIFORMES (Screamers, Ducks, and Relatives)
FAMILY: ANATIDAE (Swans, Geese, and Ducks)
*Canada goose — *Branta Canadensis*
*Mallard — *Anas platyrhynchos*
Gadwall — *Anas strepera*
American wigeon — *Anas americana*
Eurasion wigeon — *Anas penelope*
Cinnamon teal — *Anas cyanoptera*
Canvasback — *Aythya valisineria*
*Lesser scaup — *Aytha affinis*
Common goldeneye — *Becephala clangula*
*Bufflehead — Bucephala albeola
ORDER FALCONIFORMES (Vultures, Hawks and Falcons)
FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures and Harriers)
*Red-shouldered hawk — *Buteo lineatus*
Golden eagle — *Aquila chrystaetos*
Rough-legged hawk — *Buteo lagopus*
Ferruginous hawk — *Buteo regalis*
*Red-tailed hawk — *Buteo jamaicensis*
White-tailed kite — *Elanus leucurus*
Sharp-shinned hawk — *Accipiter striatus*
Northern harrier — *Circus cyaneus*
FAMILY: FALCONIDAE (Caracaras and Falcons)
Prairie falcon — *Falco mexicanus*
Merlin — *Falco columbarius*
FAMILY: FALCONIDAE (Caracaras and Falcons)
American kestrel — *Falco sparverius*
ORDER GRUIFORMES (Cranes, Rails, and Relatives)
FAMILY: RALLIDAE (Rails, Gallinules, and Coots)
*American coot — *Fulica americana*

ORDER CHARADRIIFORMES (Shorebirds, Gulls, and Relatives)
FAMILY: SCOLOPACIDAE (Sandpipers and Relatives)
*Black-necked stilt — *Himantopus mexicanus*
ORDER COLUMBIFORMES (Pigeons and Doves)
FAMILY: COLUMBIDAE (Pigeons and Doves)
*Rock dove — *Columba livia*
Band-tailed pigeon — *Columba fasciata*
*Mourning dove — *Zenaida macroura*
ORDER STRIGIFORMES (Owls)
FAMILY: STRIGIDAE (Typical Owls)
Great horned owl — *Bubo virginianus*
*Burrowing owl — *Athene cunicularia*
ORDER APODIFORMES (Swifts and Hummingbirds)
FAMILY: TROCHILIDAE (Hummingbirds)
*Anna's hummingbird — *Calypte anna*
Allen's hummingbird — *Selasphorus sasin*
ORDER PICIFORMES (Woodpeckers and Relatives)
FAMILY: PICIDAE (Woodpeckers and Wrynecks)
Downy woodpecker — *Picoides pubescens*
ORDER PASSERIFORMES (Perching Birds)
FAMILY: TYRANNIDAE (Tyrant Flycatchers)
Say's phoebe — *Sayornis saya*
*Black phoebe — *Sayornis nigricans*
FAMILY: CORVIDAE (Jays, Magpies and Crows)
Steller's jay — *Cyanocitta stelleri*
*Western scrub-jay — Aphelocoma californica
*American crow — *Corvus brachyrhynchos*
Common raven — *Corvus corax*
FAMILY: TROGLODYTIDAE (Wrens)
House wren — *Troglodytes aedon*
FAMILY: TURDIDAE (Thrushes)
*American robin — *Turdus migratorius*
FAMILY: MIMIDAE (Mockingbirds and Thrashers)
*Northern mockingbird — *Mimus polyglottos*
FAMILY: STURNIDAE (Starlings and Allies)
European starling — *Sturnus vulgaris*
FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)
Brown-headed cowbird — *Molothrus ater*
Red-winged blackbird — *Agelaius phoeniceus*
*Western meadowlark — *Sturnella neglecta*
*Brewer's blackbird — *Euphagus cyanocephalus*
FAMILY: FRINGILLIDAE (Finches)
Purple finch — *Carpodacus purpureus*
House finch — *Carpodacus mexicanus*
American goldfinch — *Carduelis tristis*
*Lesser goldfinch — *Carduelis psaltria*

FAMILY: PASSERIDAE (Old World Sparrows)

House sparrow	*Passer domesticus*

CLASS MAMMALIA (Mammals)

ORDER DIDELPHIMORPHIA (Marsupials)

FAMILY: DIDELPHIDAE (Opossums)

Virginia opossum	*Didelphis virginiana*

ORDER RODENTIA (Rodents)

FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)

California ground squirrel	*Spermophilus beecheyi*

FAMILY: GEOMYIDAE (Pocket Gophers)

*****Botta's pocket gopher	*Thomomys bottae*

FAMILY: MURIDAE (Mice, Rats and Voles)

Norway rat	*Rattus norvegicus*
House mouse	*Mus musculus*

ORDER CARNIVORA (Carnivores)

FAMILY: CANIDAE (Foxes, Wolves and Relatives)

Domestic dog	*Canis familiaris*
Coyote	*Canis latrans*
Red Fox	*Vulpes vulpes*
Gray Fox	*Urocyon cinereoargenteus*

FAMILY: PROCYONIDAE (Raccoons and Relatives)

*Raccoon	*Procyon lotor*

FAMILY: MUSTELIDAE (Weasels and Relatives)

*American badger	*Taxidea taxus*

FAMILY: MEPHITIDAE (Skunks)

Western Spotted Skunk	*Spilogale gracilis*
Striped Skunk	*Mephitis mephitis*

FAMILY: FELIDAE (Cats)

Feral cat	*Felis catus*

APPENDIX C: PROGRAM LEVEL MITIGATION MEASURES FOR BIOLOGICAL RESOURCES, FROM THE *GROUNDWATER MANAGEMENT PLAN FOR THE SAN BENITO COUNTY PORTION OF THE GILROY-HOLLISTER GROUNDWATER BASIN*

1.0 TO BE INCLUDED IN THE PROJECT–FOR POTABLE WATER SUPPLY/SALINITY MANAGEMENT IMPACTS

1.1 CONSTRUCTION IMPACTS TO WETLAND HABITATS

1.1.1 Avoidance and Minimization

New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to wetland habitats. If total avoidance is not possible, then wetland replacement will be provided.

1.1.2 Wetland Replacement

The wetland habitat that will be lost under any new projects would be functionally replaced in conformance with mitigation requirements of the responsible regulatory agencies. In-kind (the same wetland type) and on-site replacement of lost wetland habitats will be done where possible.

The determination of wetland impacts and the subsequent location and design of potential mitigation sites would be determined by qualified biologists in coordination with resource agency personnel. Mitigation and habitat restoration plans would provide for the following:

a. Calculation and replacement of lost acreage and functions of wetland habitat

b. Location of restoration opportunities, complete with an analysis of the technical approach to create high quality wetlands.

c. Detailed plans will be prepared for wetland mitigation construction that includes excavation elevations, location of hydrologic connections, planting plans and soil amendments, if necessary. Maintenance and monitoring plans are to be prepared in consultation with a qualified habitat restoration specialist. Any mitigation wetlands will be monitored for a period of five years, during which the site will achieve the target jurisdictional acreage by Year 5. Specific performance criteria will be determined and monitored for site success. Monitoring reports will be provided annually to the appropriate resource agencies.

d. Permits. Prior to construction of any project element that may impact wetland habitats, the project proponent will apply for a Section 404 permit and Water Quality Certification from the U.S. Army Corps of Engineers and the Regional Water Quality Control Board. The project proponent will comply with the conditions of required permits.

1.1.3 Encroachment Into Riparian Buffer Zones

If a new project element would be located within 100 feet of the edge of a riparian corridor, and has encroachment impacts, mitigation in the form of habitat replacement or a functional equivalent will be completed. Mitigation ratios will be determined by a qualified biologist and will be based upon the type of development proposed and the quality and extent of indirect impacts to the riparian habitat.

1.1.4 Implement Hazardous Materials Spill Prevention and Best Management Practices

A hazardous material spill prevention plan will be developed and implemented for any work in or adjacent to the Pajaro River or its tributaries. Hazardous materials will be stored in secured structures with secondary spill containment features. Refueling of construction equipment and vehicles will not occur within 300 feet of any water body or anywhere that spilled fuel could drain to a water body. The contractors will check and maintain equipment and vehicles daily to prevent leaks of fuels, lubricants, or other fluids. The implementation of Best Management Practices (see Implementation of Best Management Practices for Work in Stream Channels, above) will also be required.

1.2 CONSTRUCTION IMPACTS TO RED-LEGGED FROGS AND OTHER AQUATIC SPECIES

1.2.1 Avoidance

To the greatest extent feasible, construction of project elements will be planned to avoid habitat for aquatic species such as the red-legged frog. If construction will occur adjacent to habitat for aquatic species, impacts will be avoided through the following measures.

a. Prior to any construction activities, the boundaries of construction areas will be clearly delineated with orange plastic construction fencing to prevent workers or equipment from inadvertently straying from the construction area. All construction personnel, equipment, and vehicle movement shall be confined to designated construction areas and connecting roadways. Movement of construction and personal vehicles shall be prohibited outside designated construction areas or off established roadways.

b. Prior to the onset of any ground disturbing activities, exclusion fencing will be established around areas of potentially occupied habitat, as determined by a qualified biologist. Exclusion fencing will consist of silt-fencing or similar material at least 36 inches in height that is buried six inches in the ground to prevent incursion under the fence. Exclusion fencing may be installed at the base of the construction fencing described in A above. This fence will be surveyed each morning before construction, to verify that no frogs have entered the construction site.

c. Before any construction activities begin, a U.S. Fish and Wildlife Service approved biologist will conduct a training session with construction personnel to describe the California red-legged frog and its habitat, the specific measures being implemented to minimize effects to the species, and the boundaries of the construction area.

d. All food-related trash items will be enclosed in sealed containers and removed daily from a project site to discourage the concentration of potential predators in habitat potentially occupied by California red-legged frogs.

1.2.2 Consultation with the USFWS

Take of California red-legged frogs is only permitted through consultation with the USFWS. Some project elements may involve a federal nexus and, therefore, Section 7 consultation will be required. Other project elements will lack a federal nexus, however, and take will only be

authorized upon approval of a suitable Habitat Conservation Plan (HCP). The HCP will provide specific mitigation measures appropriate to the scale of take. Depending on the construction activities, these mitigation measures could range from presence of an on-site monitor to extensive habitat restoration. An HCP would be completed though consultation with the USFWS.

1.3 IMPLEMENT HAZARDOUS MATERIALS SPILL PREVENTION AND BEST MANAGEMENT PRACTICES.

See Implement Hazardous Material Spill Prevention and Implementation of Best Management Practices For Work in Stream Channels, above).

1.4 CONSTRUCTION IMPACTS TO SAN JOAQUIN KIT FOX

1.4.1 Take Avoidance

Standard take-avoidance measures listed on the following pages will be implemented to avoid direct take of any individual kit fox that may wander onto the project site. To avoid direct take of any individual kit fox that may be present on a project site, preactivity surveys will be conducted if any habitat feature with the potential to be used by kit foxes (i.e. burrows, irrigation pipes, debris piles) is created or placed on site and is to be subsequently disturbed or moved. If kit foxes are detected, work in that area must cease and consultation with the USFWS is necessary to determine the appropriate course of action.

STANDARD RECOMMENDATIONS PUT FORTH BY UNITED STATES FISH AND WILDLIFE SERVICE FOR THE PROTECTION OF SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE. 28 JUNE 1999.

Construction and Operational Requirements

Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbances should be minimized. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. To prevent harassment, morality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphate should be used because of proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has expected impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; and explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if

necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject of "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.

12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff as 1416-9th Street, Sacramento, California, (916) 654-4262.

1.5 POTENTIAL CONSTRUCTION IMPACTS TO VERNAL POOL FAIRY SHRIMP

Vernal pool fairy shrimp are reported to occur in San Benito County. Any construction that would directly impact vernal marsh habitat (including construction during the dry season) could negatively impact this species.

1.5.1 Avoid Habitat

New projects should be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to vernal pool habitat. If construction is planned adjacent to vernal pool habitat, prior to any construction activities, the boundaries of construction areas will be clearly delineated with orange plastic construction fencing to prevent workers or equipment from inadvertently straying from the construction area.

1.6 PROTECT WATER QUALITY

Refer to Implement Hazardous Materials Spill Prevention, above.

1.7 CONSTRUCTION IMPACTS TO CALIFORNIA TIGER SALAMANDERS AND THEIR HABITAT

California tiger salamanders could occur in aquatic habitats, and in grassland and oak woodland habitats near aquatic habitat (including vernal marshes) in San Benito County. Construction activities in these habitats could impact California tiger salamanders. The following mitigation

measures will reduce impacts to California tiger salamanders and their habitat to less-than-significant levels.

1.7.1 Determine Presence/Absence

Prior to construction, appropriate level surveys (as determined in consultation with the U.S. Fish and Wildlife Service) for California tiger salamanders will be conducted by a qualified biologist in any potential habitat for the species that could be affected by the Management Plan.

1.7.2 Avoidance

Project elements that will impact California tiger salamanders or their habitat will be redesigned to avoid all impacts. If avoidance is not possible, then the project will need to compensation for lost habitat values.

1.7.3 Compensation for Habitat Loss

Replacement of aquatic, wetland, and/or upland habitat that provides breeding or aestivation habitat for California tiger salamanders will provided commensurate with project impacts. Restoration of areas of temporary impacts will replace amphibian habitat impacted temporarily. Mitigation ratios to compensate for permanent impacts to aquatic, wetland and upland habitat must provide more than the existing breeding, foraging and aestivation habitat at the impact site.

1.8 CONSTRUCTION IMPACTS TO BURROWING OWLS AND BURROWING OWL HABITAT

Raptors, including owls, and their nests are protected under both federal and state laws, including the Migratory Bird Treaty Act and California Fish and Game Code section 3503.5. Burrowing owls could occur in grassland habitat and margins of agricultural areas where ground squirrels are present. Construction-related disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by Fish and Game Code and MBTA.

For projects in grassland habitat that could result in permanently displacement of burrowing owls (i.e., installation of evaporation ponds, constructed wetlands, or percolation ponds), protocol burrowing owl surveys will be conducted between April 15 and July 15. If burrowing owls are observed during surveys, the extent of burrowing owl habitat on the site will be delineated by a qualified ornithologist. Avoidance and/or habitat mitigation measures will be incorporated in future projects, as appropriate.

1.8.1 Avoidance

Preconstruction surveys for burrowing owls will be completed no more than 30 days prior to the start of construction in grassland habitat and margins of agricultural areas where habitat for burrowing owls is present. If no burrowing owls were located during these surveys, no additional action would be warranted. However, if breeding or resident owls were located on, or immediately adjacent to, the site, the project could be reconfigured to avoid impacts or buffer zones will be established and/or resident owls will be relocated, as described below. For projects that would permanently displace burrowing owl populations, habitat replacement could be required.

1.8.2 Buffer Zones
A 250-foot buffer, within which no new activity will be permissible, will be maintained between project activities and any nesting burrowing owls. This protected area will remain in effect until young have fledged.

1.8.7 Relocation
If construction will directly impact occupied burrows, eviction efforts outside the nesting season may be occur. No burrowing owls will be evicted from burrows during the nesting season (February 1 through August 31) without prior written approval from CDFG.

1.8.8 Habitat Replacement
For projects that would permanently impact occupied, burrowing owl habitat, habitat replacement may be required as part of a habitat mitigation plan and mitigation agreement with the CDFG. Habitat replacement could include protection of the habitat replacement area in perpetuity by a conservation easement or fee title acquisition. Burrowing owl replacement habitat (for projects in northern San Benito County) should be identified within the northern San Benito County or southern Santa Clara County area.

1.9 CONSTRUCTION IMPACTS TO LARGE NESTING COLONIES OF TRICOLORED BLACKBIRDS

Large Tricolored Blackbirds nesting colonies are present in wetland habitats in northern San Benito County. This species could be impacted by construction activities during the nesting season (March 1 to July 1). Construction close to active colonies could result in desertion of nests.

1.9.1 Preconstruction Surveys and Avoidance
Prior to construction during the breeding season (March 1 to July 1) within 250 feet of potential nesting habitat for Tricolored Blackbirds (wetland habitat with tall vegetation nearby), preconstruction surveys will be conducted. If Tricolored Blackbirds are present, construction will be delayed until after the breeding season.

2.0 FURTHER PROGRAM-LEVEL MITIGATION MEASURES TO BE APPLIED IF A PIPELINE CROSSING OR STORMWATER OUTFALL IS REQUIRED AS PART OF PHASE II (POTABLE WATER PROJECT/SALINITY MANAGEMENT PROJECT)

2.1 CONSTRUCTION IMPACTS TO RIPARIAN HABITATS

2.1.1 Avoidance and Minimization
New projects will be designed, constructed, and operated in such a way as to avoid and/or minimize impacts to riparian habitats. If avoidance is not possible, then riparian habitat replacement will be required.

2.1.2 Riparian Habitat Replacement
Permanent impacts to vegetation within riparian habitats are typically mitigated at ratios based on the quality of the habitat to be impacted. Due to the complex mosaic of habitats often found within riparian corridors, impacts are typically assessed based on three habitat quality categories,

described below. This methodology ensures that, regardless of the type of habitat impacted, its relative value and time required to reestablish replacement habitat is taken into account in quantifying impacts and necessary mitigation. As a result, the impact quantities are not calculated by habitat type, but rather by habitat quality category.

The three habitat quality categories are:

- High quality – Native overstory with continuous understory or occurring in dense thickets; dense native overstory with sparse, non-native or no understory; and native willow thicket.

- Medium quality – Sparse native overstory with sparse, non-native or no understory, non-native overstory with native understory, and dense non-native overstory with sparse, non-native or no understory.

- Lower quality – Sparse non-native overstory with sparse, non-native or no understory. In addition, any areas not included in medium or high quality categories that will be covered with riprap, gabions, etc. (e.g., ruderal habitat and bare ground).

Mitigation ratios of 3:1, 2:1, and 1:1 (replacement acres:lost acres) will generally be applied for impacts to high, medium and low-quality habitats, respectively.

The assessment of riparian impacts and the subsequent location and design of potential mitigation sites will be determined by qualified biologists in coordination with resource agency personnel. These plans will include the following:

a. A description of how the restoration will replace the lost acreage, functions, and values of riparian habitat.

b. Site specific restoration design with a complete analysis of the technical approach to create high quality riparian habitat. The design will include an implementation plan that details site grading, soil amendments, irrigation, planting list, floodplain connectivity, geomorphic conditions and anticipated wildlife use. Revegetation should use native species with seeds or cuttings collected on-site or locally. The restoration plan will also include an explanation of all required site maintenance. A monitoring plan will be developed that includes success criteria for all riparian plantings.

2.1.3 Consolidation of Riparian Mitigation.

If multiple smaller impact areas occur, it would be beneficial to consolidate mitigation into a larger habitat restoration area. Larger riparian restoration areas would provide greater functions and values than numerous small mitigation sites. The location and design of potential mitigation sites will be determined by qualified restoration biologists in coordination with resource agency personnel.

2.1.4 Permits

Prior to construction within the bed and banks of creeks, rivers, or lakes, the project proponent will apply for and obtain a Streambed Alteration Agreement from the California Department of Fish and Game.

2.2 CONSTRUCTION IMPACTS TO AQUATIC HABITAT AND SPECIES

2.2.1 Implementation of Best Management Practices For Work in Stream Channels.

Implementation of Best Management Practices described below will reduce potential impacts to aquatic species to a less-than-significant level. The following recommendations by the California Department of Fish and Game must be followed, regardless of whether any watercourse within project element footprints are dewatered or not, in order to comply with proper mitigation measures:

a. No equipment will be operated in the live stream channel.

b. When work in a flowing stream is unavoidable, any stream flow shall be diverted around the work area by a barrier, temporary culvert or a new channel capable of permitting upstream and downstream fish movement.

c. Construction of the barrier or the new channel shall normally begin in the downstream area and continue in an upstream direction and the flow shall be diverted only when construction of the diversion is completed.

d. No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the State.

2.2.2 Impacts to Steelhead

Steelhead could occur in the San Benito River, Pacheco Creek, and any other unobstructed tributary of the Pajaro River. Construction activities that will occur in stream habitat (e.g. those involving diversion structures) could directly impact steelhead. If channel diversions occur, steelhead could become stranded, and activities in channels could result in direct take of individuals. In addition, construction activities could result in degradation of water quality (e.g. through leaching cement altering stream pH or increasing sedimentation).

2.2.3 Construction Scheduling and Work in Channels Where Water is Present.

Construction in tributaries of the Pajaro River will be limited to the dry season (June 1 to October 31), when steelhead are least likely to be present. Most of the San Benito River and other tributaries are typically dry during this time period. If construction will occur in a live, flowing, stream channel, National Marine Fisheries Service (NMFS) will be consulted regarding measures necessary to prevent take. Because it is possible that juveniles could be moving downstream during any time of year, including the dry season, these measures should ensure that movement of steelhead is not prevented by any water diversion structures used during construction, regardless of when construction occurs. Ideally, the live stream channel will be maintained and protected (e.g. by a structure covering the channel, and coffer dams around construction areas). If the live channel cannot be maintained, water would be diverted through construction sites by way of an open ditch (rather than a pipe) connecting the portions of the

channel immediately upstream and downstream from the site. This plastic-lined ditch should also be lined with cobble-sized stones to deter predation by making the steelhead less conspicuous as they pass through the channel. Water within this ditch should be at least 30 centimeters (12 inches) deep, and no impediments to movement, such as high drop structures, will be present.

2.2.4 Reduce Barriers to Movement.

The placement of diversion structures or other hardscape within and immediately adjacent to the low flow channel of any tributary could cause an impediment to migration for steelhead. Potential in-stream structures will be designed in such a way as to not encroach upon the low flow channel and be designed to avoid hardscape that could result in significant eddies within the low flow channel.

2.2.5 Consultation with National Marine Fisheries Service

Consultation with National Marine Fisheries Service will be completed for any new project activities that could affect steelhead such as dewatering creeks or rivers, or any in-stream construction.