

BAKER WATER TREATMENT PLANT PROJECT

Final Environmental Impact Report
SCH#: 2010051055

Prepared for
Irvine Ranch Water District

April 2011



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Notice of Determination

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Appendix D

TO:

Office of Planning and Research
For U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812-3044
County Clerk
County of: Orange
Address: 12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

FROM:

Public Agency: Irvine Ranch Water District (Applicant)
Address: 15600 Sand Canyon Avenue
Irvine, California 92618
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Phone: (949) 453-5300
Lead Agency (if different from above):
Address:
Contact:
Phone:

Subject: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2010051055

Project Title: Baker Water Treatment Plant Project

Project Location (include county): Wisteria and Palmwood, Lake Forest, Orange County, 92630

Project Description:

The Project would provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity for potable water. The Baker WTP would have a normal operating capacity of 28 mgd and would treat raw water from variable supply sources, including imported water and Irvine Lake water. The Baker WTP would provide treated water to IRWD and four partner water agencies in southern Orange County: El Toro Water District, Moulton Niguel Water District, Santa Margarita Water District, and Trabuco Canyon Water District.

This is to advise that the Irvine Ranch Water District has approved the above described project on (X) Lead Agency or () Responsible Agency

April 25, 2011 and has made the following determinations regarding the above described projects. (Date)

- 1. The project [] will [X] will not have a significant effect on the environment.
2. [X] An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA. [] A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [X] were [] were not made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [X] was [] was not adopted for this project.
5. A statement of Overriding Considerations [] was [X] was not adopted for this project.
6. Findings [X] were [] were not made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the Negative Declaration, is available to the General Public at:

http://www.irwd.com

Signature (Public Agency)

[Handwritten Signature]

Title: Principal Water Resources Manager

Date: 4/26/11

Date Received filing at OPR:

Recorded in Official Records, Orange County Tom Daly, County Recorder

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Acronyms Used in this Report

AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ADT	Average Daily Traffic
AEP	Association of Environmental Professionals
af	Acre Feet
AMP	Allen-McColloch Pipeline
amsl	Above Mean Sea Level
APCDs	Air Pollution Control Districts
AQMDs	Air Quality Management Districts
AQMP	Air Quality Management Plan
ASCE	American Society of Civil Engineers
ASTs	Aboveground Storage Tanks
B.P.	Before Present
Basin Plan	Santa Ana River Basin Water Quality Control Plan
BFP	Baker Filtration Plant
BMPs	Best Management Practices
CAA	Clean Air Act
Cal EPA	California Environmental Protection Agency
Cal OSHA	California Occupational Safety and Health Administration
CalARP	California Accidental Release Prevention
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFFP	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CDTSC	California Department of Toxic Substances Control
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act

CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
CGS	California Geological Survey
CH ₄	Methane
CHL	California Historical Landmarks
CHRIS	California Historical Resources Information System
CMP	Congestion Management Plan
CMU	Concrete Masonry Unit
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society Electronic Inventory
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	CO ₂ Equivalent
Corps	U.S. Army Corps of Engineers
CSS	Coastal Sage Scrub
CT	Chlorine Contact
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
cy	Cubic yards
dB	Decibels
dBA	A-weighted Decibels
DFG Code	California Fish and Game Code
DNL (Ldn)	24-hour day and night A-weighted noise exposure level
DOGGR	State Department of Conservation Division of Oil, Gas, and Geothermal Resources
Draft EIR	Draft Environmental Impact Report
DTSC	Department of Toxic Substance Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
EOCWD	East Orange County Water District
ERP	Emergency Response Plan
ETWD	El Toro Water District
FCAA	Federal Clean Air Act
FCAAA	Federal Clean Air Act Amendments

FCF	Flow Control Facility
Fe	Iron
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
FIRMs	Flood Insurance Rate Maps
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHG	Greenhouse Gas
gpm	Gallons per Minute
GWP	Global Warming Potential
GWR	Groundwater Recharge
GWRS	Groundwater Replenishment System
H ₂ O	Water Vapor
HAPs	Hazardous Air Pollutants
HCP	Natural Community Conservation Plan/Habitat Conservation Plan
HFCs	Hydrofluorocarbons
HMBP	Hazardous Materials Business Plan
HOA	Homeowners Association
HRI	California State Historic Resources Inventory
HS	Highway System
HWCL	Hazardous Waste Control Law
Hz	Hertz
I-5	Interstate 5
IBC	International Building Code
IRWD	Irvine Ranch Water District
IWMD	Orange County Integrated Waste Management Department
kWH	Kilowatt Hours
LAWD	Los Alisos Water District
LAWRP	Los Alisos Water Recycling Plant
LCP	General Plan/Local Coastal Plan
LOS	Level of Service
LUST	Leaking Underground Storage Tank

M	Richter Magnitude
M&I	Municipal and Industrial
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
MCL	Maximum Contaminant Level
MFS	Membrane Filtration System
MG	Million Gallons
mgd	Million Gallons per Day
Mmax	Maximum Moment Magnitude
Mn	Manganese
MNWD	Moulton Niguel Water District
MPAH	County of Orange Master Plan of Arterial Highways
MRZ	Mineral Resource Zones
MTBE	Methyl Tertiary-Butyl Ether
MUN	Municipal and Domestic Supply
MUTCD	Manual on Uniform Traffic Control Devices
Mw	Moment Magnitude
MWD	Metropolitan Water District of Southern California
MWDOC	Metropolitan Water District of Orange County
MWDOC	Municipal Water District of Orange County
N ₂ O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NITM	North Irvine Transportation Mitigation
NOC	Notice of Completion
NOP	Notice of Preparation
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	National Resources Conservation Service
NRW	Non-reclaimable Waste or Wastewater

OAL	Office of Administrative Law
OCC	Orange County Certified
OCFA	Orange County Fire Authority
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PD	Planned Development
PFCs	Perfluorocarbons
PGA	Peak Ground Acceleration
PHG	Public Health Goal
PHI	California Points of Historical Interest
PM	Particulate Matter
PM10	Respirable Particulate Matter
PM2.5	Fine Particulate Matter
PPV	Peak Particle Velocity
PRC	Public Resources Code
PWPS	Product Water Pump Station
RARE	Preservation of Rare and Endangered Species
RCPG	Regional Comprehensive Plan and Guide
RCRA	Resource Conservation and Recovery Act
REC 1	Water Contact Recreation
REC 2	Non-Contact Water Recreation
RMP	Risk Management Plan or Program
RMP	Risk Management Program
RMS	Root Mean Square
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
RWTP	Baker Regional Water Treatment Plant
SAA	Streambed Alteration Agreement
SAC	Santiago Aqueduct Commission
SARWQCB	Santa Ana Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin

SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCEDC	Southern California Earthquake Data Center
SCP	South County Pipeline
SDC	Seismic Design Category
SF ₆	Sulfur Hexafluoride
SIP	State Implementation Plan
SLF	Sacred Lands File
SMBRP	Site Mitigation and Brownfields Reuse Program
SMWD	Santa Margarita Water District
SOCWA	South Orange County Water Agency
SONGS	San Onofre Nuclear Generating Station
SR-241	State Route 241
SR-261	State Route 261
STATSGO	State Soil Geographic
SVP	Society for Vertebrate Paleontology
SVUSD	Saddleback Valley Unified School District
SWLF	Solid Waste Landfill
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic Air Contaminants
TCWD	Trabuco Canyon Water District
TDS	Total Dissolved Solids
TIA	Traffic Impact Analysis
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
USCB	United State Census Bureau
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

USTs	Underground Storage Tanks
Vdb	Decibel Notation
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Compounds
WARM	Warm Freshwater Habitat
WDRs	Waste Discharge Requirements
WILD	Wildlife Habitat
WSEL	Water Surface Elevation
WTP	Baker Water Treatment Plant

EXECUTIVE SUMMARY

ES.1 Introduction

The Irvine Ranch Water District (IRWD) has prepared this Environmental Impact Report (EIR) to provide the public, responsible and trustee agencies and IRWD decision-makers information about the potential adverse effects on the local and regional environment associated with construction and operation of the Baker Water Treatment Plant (WTP) Project (proposed project). This EIR has been prepared pursuant to the California Environmental Quality Act (CEQA).

The proposed Baker WTP would have a normal operating capacity of 43.5 cfs (28 mgd) and would treat raw water from variable supply sources. The proposed Baker WTP would provide redundant treatment capacity to Metropolitan Water District of Southern California's (MWD) Diemer Treatment Plant. The project would not increase the capacity of regional treated water distribution pipelines, but rather improve regional potable water system reliability and operational flexibility. As described in Chapter 1, the Baker WTP would provide treated water to IRWD and four partner water agencies in southern Orange County: El Toro Water District (ETWD), Moulton Niguel Water District (MNWD), Santa Margarita Water District (SMWD), and Trabuco Canyon Water District (TCWD). In addition to the Baker WTP, the proposed project also would include a new offsite pump station near Peters Canyon Reservoir; a meter exchange and pipeline replacement at OC-33; a new sewer pipeline to convey non-reclaimable wastewater (NRW) from the Baker WTP to IRWD's sanitary sewer system; and may include new pipelines to convey treated water from the Baker WTP to the South County Pipeline.

This Executive Summary provides an overview of the proposed project, its objectives, and a summary of the potential impacts anticipated as a result of project implementation. The summary table (**Table ES-1**) included at the end of this chapter identifies these impacts and lists the mitigation measures recommended to reduce significant adverse impacts. Alternatives to the proposed project are also briefly described.

For a full description of the proposed project, its impacts, and alternatives, please refer to Chapters 2, 3, 4, and 5 of this EIR.

ES.2 Background

IRWD was established in 1961 as a California Water District pursuant to the California Water District Law (California Water Code, Division 13). IRWD provides potable and recycled water, sewage collection and treatment, and urban runoff treatment to municipal and industrial (M&I) and agricultural customers within an 115,531-acre service area in Orange County, California. The IRWD service area includes all of the City of Irvine and portions of Tustin, Newport Beach,

Costa Mesa, Orange and Lake Forest. Currently, 75 to 80 percent of the water IRWD provides for its customers comes from local sources, including groundwater (produced from the groundwater basin managed by Orange County Water District), surface water, and recycled water (from IRWD's Michelson and Los Alisos Water Recycling Plants). Less than 25 percent of IRWD's water supply is imported by MWD and purchased by IRWD through the Municipal Water District of Orange County (MWDOC). MWD imports water through both the State Water Project (SWP) and the Colorado River Aqueduct systems.

In 2001, IRWD completed a consolidation with Los Alisos Water District (LAWD), which served portions of the City of Lake Forest. The existing Baker Filtration Plant (BFP), located on Wisteria in Lake Forest, was one of the facilities owned and operated by LAWD that is now owned by IRWD. The BFP was operational from 1971 to 1983, and was decommissioned when the Allen-McColloch Pipeline was constructed. All BFP facilities are currently non-operational although remain onsite, including reservoirs, a filter plant, pump stations, and storage/office building. IRWD has additional facilities in and around the BFP site that provide filtered water as a supplement to its recycled water system.

ES.3 Project Objectives

The proposed Baker WTP is a regional project that is intended to:

- Improve water reliability to areas of south Orange County by constructing local treatment capability for a variable supply source (imported water from MWD and local Irvine Lake water).
- Provide a reliable, local potable water supply in the event of emergency conditions or scheduled maintenance of MWD's delivery system.
- Increase operational flexibility by creating redundancy within the raw water supply system.

ES.4 Project Description

Raw Water Supply and Conveyance

The raw water sources for the proposed project include imported water supplied by MWD or local surface water from Irvine Lake. Both raw water sources would be conveyed using existing pipeline facilities, including the Lower Feeder, Santiago Lateral, Baker Pipeline, and Irvine Lake Pipeline. Imported raw water would enter the Santiago Lateral from the Lower Feeder upstream of the Diemer Filtration Plant. Then, raw water would enter the Baker Pipeline from the Santiago Lateral at the OC-33 turnout. The proposed project includes a meter exchange within the existing concrete vault at OC-33 and replacement of a short segment of pipeline at OC-33 as well.

Raw water from Irvine Lake would be used intermittently throughout the year and in the event of an outage of the Lower Feeder or Santiago Lateral. Irvine Lake is fed by Santiago Creek and water imported through the Santiago Lateral. The lake captures approximately 7,000 acre-feet of local runoff per year (RBF/Carollo, 2010). IRWD is a partial owner of the lake together with Serrano Water District. IRWD currently supplies untreated water from Irvine Lake to irrigation customers. To deliver water from Irvine Lake to the Baker Pipeline, a new pump station would be

constructed at the existing Baker/Irvine Lake Pipeline Intertie Facility near Peters Canyon Reservoir. The pump station would transfer water from the Irvine Lake Pipeline to the Baker Pipeline. The pump station would be aboveground and would be designed with a similar aesthetic and architecture as the existing neighboring buildings onsite.

Baker WTP

Raw water would be treated at the proposed Baker WTP, which would be located at the site of the existing BFP. The Baker WTP would have a normal operating capacity of about 43.5 cfs (28 mgd). Raw water treatment would consist of membrane filtration, ultraviolet light for disinfection, and chloramination for secondary or residual disinfection (RBF/Carollo, 2010).

The proposed project would require demolition of some existing aboveground facilities at the BFP. The following new facilities would be constructed at the proposed Baker WTP:

- **Raw Water Conveyance Facilities:** flow control facility, TCWD pump station, forebay, feed water strainers, feed water pump station; and about 1,000 feet of new 42-inch feed water pipeline.
- **Treatment Facilities:** treatment building to house membrane filters and UV facilities, disinfection facility, backwash water treatment facilities, chemical storage building, standby generator, electrical equipment.
- **Treated Water Facilities:** product water pump station, surge tanks, standby generator, electrical equipment, new 36-inch and 42-inch product water pipelines, meter vault.
- **Emergency Overflow Facilities:** 42-inch pipeline and discharge structure to convey overflow water from the forebay and disinfection facility to Serrano Creek.
- **Site Access Facilities:** access during construction via Biscayne Bay Drive and existing access road; access during plant operation via Palmwood/Wisteria, Biscayne Bay Drive, and/or Indian Ocean Avenue; Wisteria gate relocation and new security fencing.

The aboveground Baker WTP facilities would be designed to be compatible with existing buildings onsite at the BFP. The architectural theme would include concrete masonry unit (CMU) block walls, steel deck roofs, and aluminum frame doors and windows (RBF/Carollo, 2010). The building designs would attenuate the sound levels of mechanical equipment to be in compliance with City of Lake Forest noise ordinances at the Baker WTP property line. The proposed Baker WTP would require a computerized supervisory control and data acquisition (SCADA) system to allow for remote control and monitoring of equipment, in addition to local control and monitoring. The Baker WTP SCADA system would be integrated into IRWD's existing district-wide SCADA system, which is used to communicate with IRWD facilities and ensure coordination and proper operation of IRWD facilities and systems throughout the service area. Operation of the Baker WTP SCADA system may require minor alterations to the existing antennae tower, which currently is part of IRWD's existing district-wide SCADA system.

Approximately 0.6 mgd of NRW would be generated at the proposed Baker WTP and conveyed to the IRWD sanitary sewer system. A new sewer connection at the southeastern corner of the Baker site would be necessary, as well as a new sewer pipeline. Approximately 2,500 linear feet of new 15-inch sewer pipeline would be installed along the Serrano Creek Trail in the City of

Lake Forest to connect to an existing 15-inch sewer pipeline with adequate capacity. The proposed sewer pipeline alignment would be located within an existing 15-foot utility easement owned by IRWD. NRW would be conveyed to IRWD's Los Alisos Water Recycling Plant for treatment.

Treated Water Conveyance

Treated water from the Baker WTP would flow by gravity to IRWD customers through its existing distribution system. Treated water would be conveyed to ETWD, MNWD, SMWD, and TCWD through a new pipeline connection to either the AMP or South County Pipeline (SCP). The preferred method of delivering water to the partner agencies would be through an existing connection to the AMP on the Baker WTP property. IRWD is currently coordinating with MWD for use of the AMP. If the AMP alternative is unable to be implemented, then IRWD would construct a new pipeline connecting the Baker WTP to the SCP. IRWD is considering two pipeline alignments to connect to the SCP.

ES.5 Project Alternatives

CEQA requires that “*an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project...*” (CEQA Guidelines, Section 15126.6 (a)). The discussion must focus on alternatives to the project or its location that are capable of lessening significant impacts, even if these alternatives would impede, to some degree, the attainment of project objectives, or if they would be more costly (Section 15126.6 (b)). The EIR is required to briefly describe the rationale for selecting the alternatives to be discussed and also identify any alternatives that were considered by the Lead Agency, but were rejected as infeasible during the scoping process.

The specific alternative of “No Project” shall be evaluated along with its impact. If the “No Project” alternative is determined to be the environmentally superior alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

Two alternatives analyzed in this EIR are summarized below and are examined in greater detail in Chapter 6. The alternatives are analyzed even though the proposed project would not result in any significant effects.

No-Project Alternative

Under the No Project Alternative, IRWD would not implement the proposed project; there would be no construction of the proposed Raw Water Pump Station, Baker WTP, sewer pipeline, treated water conveyance pipeline, or OC-33 meter exchange. The Baker site would remain unchanged and the Baker/Irvine Lake Pipeline Intertie also would remain unchanged. The BFP would continue to provide filtered well water to supplement IRWD's recycled water system and the antennae tower would continue to operate as part of IRWD's existing district-wide SCADA system. The Diemer Filtration Plant would continue to provide treatment for imported water for IRWD and the partner agencies in south Orange County. Raw water in Irvine Lake would continue to be utilized for agricultural irrigation.

Under the No Project Alternative, none of the project objectives would be achieved. There would be no improvements to water supply reliability in south Orange County, no increase in local water treatment capability for variable supply sources, and no redundancy in raw water supply systems to provide operational flexibility. In addition, none of the environmental impacts identified in Chapters 3 and 4 of this Draft EIR that are associated with construction and operation of the proposed project would occur.

Alternative 1: Peters Canyon WTP Location

In 2007, the Santiago Aqueduct Commission (SAC) prepared the *Baker Pipeline Regional Treatment Facility Feasibility Study* (Malcolm Pirnie, 2007), which evaluated implementation of a regional WTP at two locations, the existing Baker site and the Peters Canyon WTP. Alternative 1 consists of development of the Peters Canyon WTP, which is owned by the East Orange County Water District (EOCWD) and is located in the County of Orange approximately 0.35 miles east of Peters Canyon Reservoir. The site is surrounded by open space in the foothills of the Santa Ana Mountains and is within the boundaries of the Loma Ridge portion of the Irvine Ranch Natural Landmark. Under Alternative 1, IRWD would form a Joint Powers Authority (JPA) or otherwise contract with EOCWD for use of the Peters Canyon WTP site and implement improvements similar to the proposed project, to produce 28 mgd of treated water using either imported water or Irvine Lake water as the raw water source. Alternative 1 would require a reconnection to the Baker pipeline and an extension of the Irvine Lake Pipeline under SR-261 to convey Irvine Lake water to the site.

Alternative 1 would meet all of the goals of the project but would result in greater or more severe impacts to the environment related to aesthetics, air quality, biological resources, land use compatibility, energy and greenhouse gas emissions. Alternative 1 would result in lesser impacts associated with hazardous materials and noise.

Alternative 2: Conventional Treatment Process

The 2007 Feasibility Study (Malcolm Pirnie, 2007) evaluated conventional treatment as an alternative to membrane filtration. Under Alternative 2, IRWD would construct a new treatment plant at the Baker site using a conventional treatment process instead of a membrane filtration process. A conventional treatment process typically would require facilities such as primary treatment facilities (flocculation and sedimentation basins), secondary filtration facilities, disinfection facilities (chlorine contactor, UV facility), an equalization basin, and solids handling facilities (thickener, belt filter presses, solids disposal). Conventional treatment requires a larger footprint than a membrane filtration process, requires more chemical use and has greater sludge disposal requirements, and is slightly more expensive to build, operate, and maintain.

Although Alternative 2 would meet all of the goals of the project, as compared to the proposed project, Alternative 2 would result in greater impacts to the environment related to aesthetics, air quality (construction impacts), odor, hazardous materials, and noise. As compared to the proposed project, Alternative 2 would result in fewer operational impacts to energy and greenhouse gas emissions.

Summary of Alternatives Analysis

The alternatives evaluated in Chapter 6 of this EIR present a tradeoff between achieving project objectives and impacting the environment. The No Project Alternative would avoid all the environmental impacts of the proposed project but would not meet any of the project objectives. Alternatives 1 and 2 would meet all of the project objectives but could result in additional impacts to the environment relative to the proposed project.

An EIR must identify the environmentally superior alternative. In addition, the *CEQA Guidelines* (Section 15126.6(e)(2)) require that, if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

The No Project Alternative would result in the least environmental impacts because there would be no physical changes to the environment as a result of the proposed project. All impacts associated with the proposed project would be avoided. As a result, the No Project Alternative could be considered the environmentally superior alternative, and therefore, in accordance with CEQA, an environmentally superior alternative shall be identified among the other alternatives.

Alternatives 1 and 2 would not likely result in significant and unavoidable impacts. However, both would increase the severity of impacts associated with some environmental resources while decreasing impacts associated with others. For Alternatives 1 and 2, the increase in potential environmental impacts outweighs the potential decrease in impacts when compared to the proposed project. Therefore, the proposed project is considered the Environmentally Superior Alternative.

ES.6 Summary of Impacts

Table ES-1, at the end of this chapter, presents a summary of the impacts and mitigation measures identified for the proposed project. The complete discussion of impacts is presented in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures. The level of significance for each impact is determined using significance criteria (thresholds) developed for each category of impacts; these criteria are presented in the appropriate sections of Chapter 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less than significant impacts would not exceed the thresholds. Table ES-1 indicates the measures that would be implemented to avoid, minimize, or otherwise reduce significant impacts to a less than significant level

ES.7 Areas of Known Controversy

Section 15123 (b)(2) of the *CEQA Guidelines* requires that an EIR summary identify areas of controversy known to the Lead Agency, including issues raised by other agencies and the public.

On May 18, 2010, a Notice of Preparation (NOP) for the proposed project was distributed by the IRWD to the State Clearinghouse, interested agencies, and the public. Responses to the NOP were received by the following agencies: the City of Lake Forest, the City of Orange, the Department of

Transportation, the Native American Heritage Commission, and the South Coast Air Quality Management District. Comments from the public also were received during a public scoping meeting held on May 26, 2010.

Key environmental concerns raised by these organizations and the public included: (1) potential adverse effects on Serrano Creek Trail; (2) the aesthetic impact to nearby residential land uses; (3) the traffic impacts on local residential streets; (4) operational noise; and (5) operational light and glare. This EIR addresses each of the aforementioned areas of concern or controversy in detail in Chapters 3 and 4.

ES.8 Organization of this EIR

This Draft EIR has been organized into the following chapters:

- ES. Executive Summary.** This chapter summarizes the contents of the EIR.
- 1. Introduction and Project Background.** This section discusses the CEQA process, the purpose of the EIR, and provides background information about IRWD and the development of the proposed project.
- 2. Project Description.** This section provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.
- 3. Environmental Setting, Impacts and Mitigation Measures.** This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Agriculture and Forestry; Air Quality and Greenhouse Gas Emissions; Biological Resources; Cultural Resources; Geology, Soils, Seismicity and Mineral Resources; Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Recreation; Noise and Vibration; Public Services and Utilities; and Transportation and Traffic. Measures to mitigate the impacts of the proposed project are presented for each resource area.
- 4. Cumulative Impacts.** This chapter describes the potential impacts of the proposed project when considered together with other related projects in the project area.
- 5. Growth Inducement.** This chapter describes the potential for the proposed project to induce growth.
- 6. Alternatives Analysis.** This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered.
- 7. Report Preparers.** This chapter identifies authors and consultants involved in preparing this EIR, including persons and organizations consulted.
- 8. Comment Letters.**
- 9. Responses to Comments.**
- 10. Corrections and Additions to the Draft EIR.**

**TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT**

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
3.1 Aesthetics							
Impact 3.1-1: Implementation of the proposed project could impact scenic vistas.	AES-1: IRWD shall prepare a landscape plan during project design that includes specifications for perimeter vegetation to screen the Baker WTP from neighboring streets. The landscape plan also shall include specifications to maintain or replace vegetation onsite to the extent feasible.	Less than significant			X		
Impact 3.1-2: Implementation of the proposed project could impact the visual character of project sites and surroundings.	AES-2: IRWD shall restore areas disturbed during construction of the treated water pipeline and sewer pipeline by reestablishing pre-existing conditions including topography, repaving roadways, replanting trees, and/or reseeding or restoring with native plants typical of the immediate surrounding area. IRWD shall be responsible for monitoring the replanted areas for up to three years, or less if the revegetation is determined to be successful and sufficient to avoid excessive erosion	Less than significant.				X	X
Impact 3.1-3: Implementation of the proposed project would create a new source of light or glare that could adversely affect day or nighttime views in the area.	AES-3: The exterior nighttime security lighting installed on and around the project facilities shall be of a minimum standard required to ensure safe visibility. Lighting shall be shielded and directed downward, away from the line of sight of neighboring properties, to minimize impacts of light and glare. External security lighting shall be turned off automatically at night to the extent feasible.	Less than significant.	X		X		
	Implement Mitigation Measure NOISE-1 .		X	X	X	X	X
3.2 Agriculture and Forestry Resources							
No Agriculture and Forestry Resources impacts identified.							
3.3 Air Quality and Greenhouse Gas Emissions							
Impact 3.3-1: The proposed project could violate an air quality standard or contribute	None required.	Less than significant.					

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities					
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline	
substantially to an existing or projected air quality violation during its construction and operation.								
Impact 3.3-2: The proposed project could result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard.	None required.	Less than significant.						
Impact 3.3-3: The proposed project could expose sensitive receptors to substantial pollutant concentrations.	<u>Although not required, to minimize potential effects to sensitive receptors during construction, Mitigation Measures AQ-1 through AQ-4 would implement best management practices to further decrease construction emissions.</u>	Less than significant.			X	X	X	
	<u>AQ-1: General contractors shall implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.</u>							
	<u>AQ-2: All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.</u>			X	X	X		
	<u>AQ-3: General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off when not in use to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.</u>			X	X	X		
	<u>AQ-4: All construction vehicles shall be prohibited from idling in excess of ten minutes, both on- and off-site</u>			X	X	X		
Impact 3.3-4: The proposed project could conflict with implementation of state goals for reducing greenhouse gas emissions and thereby have a negative effect on Global Climate Change.	None required.	Less than significant.						

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
3.4 Biological Resources							
Impact 3.4-1: Implementation of the proposed project could 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 CDFG or USFWS.	BIO-1: If Option 1 of the treated water pipeline is implemented, to avoid potential impacts to terrestrial special-status species, the following measures shall apply: IRWD shall retain a qualified biologist with a CDFG Scientific Collection Permit and Memorandum of Understanding to conduct preconstruction surveys for the California Species of Special Concern that have the potential to occur within the project impact area. These wildlife species include orange throated whiptail, coast (San Diego) horned lizard, and coast patch-nose snake. All special-status wildlife species observed within the project site during preconstruction surveys shall be relocated, at the approval of CDFG, to an approved site with suitable habitat for these species. Surveys and relocation of wildlife may occur prior to construction; however, focused surveys must occur within 30 days prior to construction to ensure that no special-status wildlife is present within the project site during construction. Survey and relocation methods shall be approved by CDFG prior to commencement of grading.	Less than significant.				X	
	BIO-2: For Option 1 of the treated water pipeline, exclusionary fencing (i.e., silt fencing) shall be installed around the perimeter of the construction area where native vegetation is present, or where suitable habitat for special-status (terrestrial) species is present, as determined by a qualified biologist. The exclusionary fencing shall be backfilled (or buried) at the base of the fence to exclude reptiles from entering the work area. Installation of exclusionary fencing shall be verified by a qualified biologist prior to the commencement of construction or ground disturbing activities.	Less than significant.				X	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
	<p>BIO-3: A preconstruction nest survey shall be conducted if construction and/or ground disturbing activities will commence between February 15 and August 15. To avoid impacts to native nesting birds, including coastal cactus wren, coastal California gnatcatcher, and least Bell's vireo, IRWD and/or its contractors shall retain a qualified biologist to conduct breeding bird surveys in potential nesting habitat within and adjacent to all project sites prior to construction or site preparation activities. Potential nesting habitat may include grassy and weedy areas, as well as shrubs and trees. Suitable nesting habitat in the vicinity of proposed disturbance areas shall be determined by the qualified biologist. The qualified biologist shall conduct a nest survey within five days of ground disturbance activities associated with construction, (such as site clearing, grading, or excavation) to determine if active nests of bird species protected by the Migratory Bird Treaty Act (MBTA) or the California Fish and Game Code are present in the construction zone or within a distance determined by CDFG or the qualified biologist.</p> <p>If ground disturbance activities are delayed, additional pre-construction surveys will be conducted such that no more than five days will have elapsed between the last survey and the commencement of ground disturbance activities. Surveys shall include examination of trees, shrubs, and the ground within grassland for nesting birds, as several bird species known to occur in the area are shrub or ground nesters.</p>	Less than significant.	X	X	X	X	X
	<p>BIO-4: If active nests are found during surveys conducted in accordance with Mitigation Measure BIO-3, then the qualified biologist shall determine whether construction activities have the potential to disturb the nest(s) and determine appropriate</p>	Less than significant.	X	X	X	X	X

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
	<p>construction limitations, which may include but are not limited to erection of sound barriers, full-time monitoring by a qualified biologist, or establishment of no-construction buffers (usually 300 ft for nesting song birds and 500 ft for nesting raptors and special-status bird species). In addition, the qualified biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure no inadvertent impacts to the nest occur. If necessary, limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel shall be instructed on the sensitivity of nest areas.</p> <p>The results of the survey, and any avoidance measures taken, shall be submitted to IRWD within 30 days of completion of the pre-construction surveys and construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.</p>						
Impact 3.4-2: Implementation of the proposed project could 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 CDFG or USFWS.	BIO-5: If Option 1 of the treated water pipeline is implemented, then coastal sage scrub and coastal prickly pear succulent scrub communities that are disturbed by construction shall be restored at the same location where impacts occur on a 1:1 ratio following the completion of construction activities. If coastal sage scrub or coastal prickly pear succulent scrub would be removed for construction purposes, a restoration plan shall be completed that specifies, at a minimum, the following: (1) the location of replacement sites; (2) the quantity and species of plants to be planted; (3) a schedule and action plan to maintain and monitor the re-vegetation area; (4) a list of criteria and performance standards by which to measure success of the planting sites; (5) measures to exclude unauthorized entry into the re-	Less than significant.				X	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
	<p>vegetation/enhancement areas; and (6) contingency measures in the event that mitigation efforts are not successful. This restoration plan shall be completed prior to construction of the proposed project. Restoration activities, whether onsite or offsite, shall reuse vegetative material from the site of disturbance to the extent feasible.</p> <p>BIO-6: IRWD shall require construction contractors to implement the following measures during construction of the Baker WTP and the sewer pipeline:</p> <ul style="list-style-type: none"> The construction contractor shall install temporary erosion control measures around drains to reduce localized impacts to Serrano Creek in the area of the project and protect onsite drainages from excess sedimentation, siltation, and erosion. These measures shall consist of the installation of silt fencing, coirs, berms, and dikes to protect storm drain inlets and drainages. No changing of oil or other fluids, or discarding of any trash or other construction waste materials shall occur on the project site. Vehicles carrying supplies, such as concrete, shall not be allowed to empty, clean out, or otherwise place materials into natural areas on or immediately adjacent to the site. Any equipment or vehicles driven and/or operated within or adjacent to onsite drains shall be checked and maintained daily, to prevent leaks of materials that if introduced to Serrano Creek could be deleterious to aquatic life. No equipment maintenance shall be conducted near onsite drains. <p>BIO-7: During construction of the emergency overflow facility and associated rip rap, the construction contractor shall take measures to</p>	Less than significant.			X	X	X
					X		

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
<p>Impact 3.4-3: Implementation of the proposed project could conflict or 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.</p> <p>Impact 3.4-4: Implementation of the proposed project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.</p>	<p>avoid impacts to sensitive riparian habitat within and surrounding Serrano Creek where feasible, such as installing construction impact boundaries marked by flagging or temporary fencing. If avoidance is not feasible, negative impacts to sensitive riparian habitat shall be mitigated at ratios based on the quality of habitat affected. In general, sensitive riparian habitat, such as Southern Sycamore Alder Riparian Woodland, shall be restored or enhanced at a ratio as determined in consultation with CDFG.</p>	Less than significant.					
	<p>BIO-8: Construction activities within Serrano Creek shall be limited to dry season periods to avoid wet weather flow conditions in the creekbed.</p>				X		
	<p>BIO-9: No activities shall occur within Serrano Creek until appropriate permits have been obtained from the US Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Game.</p>		Less than significant.			X	
	<p>BIO-10: A Eucalyptus Tree Cutting Permit shall be obtained from the City of Lake Forest prior to cutting, pruning or removing any eucalyptus trees during the restricted period, April 1 through October 31. The transportation of or disposal of infected eucalyptus trees or logs shall occur only as permitted.</p>	Less than significant.			X	X	X
3.5 Cultural Resources							
<p>Impact 3.5-1: Project construction could affect an archaeological resource.</p>	<p>CUL-1: Prior to the start of any earth-moving activity, an archaeological monitor shall be retained by the IRWD to monitor ground-disturbing activities associated with the construction of the treated water pipelines and</p>	Less than significant.				X	X

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
	<p>the Serrano Creek sewer pipeline, including but not limited to grading, excavation, brush clearance and grubbing. The monitor shall be, or shall work under the supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (Department of the Interior, 2010). The duration and timing of monitoring shall be determined by the qualified archaeologist in consultation with the IRWD and based on the grading plans. Initially, all ground-disturbing activities shall be monitored. However, the qualified archaeologist, based on observations of soil stratigraphy or other factors, and in consultation with IRWD, may reduce the level of monitoring as warranted. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated.</p> <p>Due to the sensitivity of the project area for Native American resources, at least one Native American monitor may, if requested, also monitor ground-disturbing activities in the project area. The monitor(s) shall be selected from amongst the Native American groups identified by the Native American Heritage Commission as having affiliation with the project area.</p>						
	<p>CUL-2: Unanticipated Discovery. During construction of all project components, if a cultural resource is encountered, construction activities shall be redirected away from the immediate vicinity of the find until it can be evaluated by a qualified archaeologist. If the find is determined to be potentially significant, the archaeologist, in consultation with the IRWD and appropriate Native American group(s) (if the find</p>	Less than significant.	X	X	X	X	X

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
Impact 3.5-2: Implementation of the proposed project could adversely affect paleontological resources.	is a prehistoric or Native American resource), shall develop a treatment plan. Construction activities shall be redirected to other work areas until the treatment plan has been implemented or the qualified archaeologists determines work can resume in the vicinity of the find.						
	CUL-3: Paleontological Mitigation and Monitoring Plan. Prior to the start of any earth-moving activity, IRWD shall retain an Orange County Certified Paleontologist. The Paleontologist shall prepare a Paleontological Mitigation and Monitoring Plan that provides for the treatment of paleontological resources in accordance with the mitigation guidelines for areas of high potential outlined by the SVP. The mitigation and monitoring plan shall address pre-construction salvage and reporting; pre-construction contractor sensitivity training; procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report.	Less than significant.	X	X	X	X	X
	CUL-4: Paleontological Monitoring. All earth moving activities in the Oso Sand Member of the Capistrano Formation shall be monitored full time.unless the paleontologist determines that sediments are previously disturbed or there is no reason to continue monitoring in a particular area due to other depositional factors, which would make fossil preservation unlikely or deemed scientifically insignificant. If it becomes apparent to the paleontologist that bedrock will not be impacted in an area, monitoring may be suspended temporarily until bedrock is impacted again. Spot-checking by the paleontologist will be allowed to determine if bedrock is being impacted. If impacts to bedrock resume, full-time monitoring will resume. In the event fossils are exposed during earth moving, construction activities shall be redirected to other work areas	Less than significant.	X	X	X	X	X

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities					
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline	
	until the procedures outlined in the Paleontological Mitigation and Monitoring Plan have been implemented or the paleontologist determines work can resume in the vicinity of the find.							
Impact 3.5-3: Implementation of the proposed project could result in the disturbance of human remains.	CUL-5: If human remains are encountered unexpectedly during construction excavation and grading activities, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC will then identify a Most Likely Descendent (MLD), of the deceased Native American, who will provide recommendations as to the future disposition of the remains. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices and taking into account the possibility of multiple human remains, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the MLD, as prescribed in this section (PRC 5097.98).	Less than significant.	X	X	X	X	X	
3.6 Geology, Soils, and Mineral Resources								
Impact 3.6-1: Implementation of the proposed project could expose people and structures to strong seismic ground shaking, seismic related ground failure, and landslides.	None required.	Less than significant.						
Impact 3.6-2: Implementation of the proposed project could result in substantial soil erosion or loss of topsoil.	GEO-1: IRWD shall require the construction contractor to include best management practices (BMPs) in the Storm Water Pollution Prevention Plan for the project, to minimize soil erosion and	Less than significant.	X	X	X	X	X	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
	sedimentation from the project sites, including but not limited to the following: use of sediment barriers and traps, silt basins, and silt fences. Implement Mitigation Measure AES-2 .			X		X	X
Impact 3.6-3: The proposed project may 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 on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse	GEO-2: Prior to approval of construction plans for the proposed project, a design-level geotechnical investigation, including collection of site-specific subsurface data shall be completed by IRWD for all project components. The geotechnical investigation shall be conducted by a certified engineering geologist or registered geotechnical engineer. The geotechnical investigation shall identify appropriate engineering considerations, including density profiles, approximate maximum shallow groundwater level, vertical and lateral extent of the saturated sand/silt layers that could undergo liquefaction, and potential presence of expansive soils. The geotechnical investigation shall recommend site-specific design criteria to mitigate potential risks due to liquefaction, landslides, subsidence, and expansive soils. Recommended design criteria shall be in accordance with SP 117 where appropriate (e.g., sewer pipeline) and become part of the proposed project.	Less than significant.	X	X	X	X	X
Impact 3.6-4: The proposed project may be located on expansive soils.	Implement Mitigation Measure GEO-2 .	Less than significant.	X	X	X	X	X
3.7 Hazards and Hazardous Materials							
Impact 3.7-1: The proposed project could create a significant hazard to the public or the environment through routine transport, use or disposal of hazardous materials that may result in accident conditions involving the release of hazardous materials into the environment.	HAZ-1: IRWD shall require the construction contractor to include the following BMPs in the SWPPP that would prevent the accidental release of hazardous materials. The plan shall include, but not be limited to, the following BMPS: <ul style="list-style-type: none"> Follow manufacturers' recommendations and regulatory requirements for use, storage, and disposal of chemical products and hazardous 	Less than significant.	X	X	X	X	X

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
	<p>materials used in construction.</p> <ul style="list-style-type: none"> • During routine maintenance of construction equipment, properly contain and remove grease and oils. • Properly dispose of discarded containers of fuels and other chemicals. • In the event of a petroleum product spill, the contractor shall contain the spill and clean up the contaminated area in compliance with regulations with DTSC and RWQCB approval. Contaminated soils shall be removed and disposed of in accordance with applicable regulations. 						
Impact 3.7-2: The proposed project could impair the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	Implement Mitigation Measures TR-1 and TR-3 .	Less than significant.	X	X	X	X	X
Impact 3.7-3: The proposed project could expose people and structures to a significant risk or loss, injury or death to wildland fires.	<p>HAZ-2: IRWD shall require the construction contractor to implement the following best management practices during construction of the Raw Water Pump Station and OC-33 Meter Exchange to prevent wildland fires.</p> <ul style="list-style-type: none"> • During construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other flammable material. • Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. • All vehicles and crews working at the project site shall have access to functional fire extinguishers at all times. • Construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks. 	Less than significant.	X	X			

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
3.8 Hydrology and Water Quality							
Impact 3.8-1: Construction and operation of the proposed project could violate water quality standards or waste discharge requirements.	None required.	Less than significant.					
Impact 3.8-2: The proposed project could substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or a river that would increase the rate or amount of surface runoff in a manner that would result in flooding, erosion, or siltation on or off site.	Implement Mitigation Measure AES-2 .	Less than significant.				X	X
Impact 3.8-3: The proposed project could potentially contribute or create runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide sources of polluted runoff.	None required.	Less than significant.					
3.9 Land Use, Planning, and Recreation							
Impact 3.9-1: Implementation of the proposed project could conflict with applicable land use plans, policies, or regulations.	None required.	Less than significant.					
Impact 3.9-2: Construction of the proposed project could affect recreational facilities and have a significant effect on the environment.	LU-1: For installation of the sewer pipeline, IRWD shall require the construction contractor to prepare and implement a Trail Detour Plan prior to construction. The plan shall: <ul style="list-style-type: none"> • Identify hours of construction. • Include a work area delineation requiring trail detours. • Identify and establish detours around construction where room is available without affecting vegetation. Install detour signs as appropriate. • If detours are not possible identify signage 	Less than significant.				X	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
	<p>requirements noting temporary trail closure.</p> <ul style="list-style-type: none"> Post notices regarding upcoming trail detours and closures at trail heads and entry points at least 10 days in advance. <p>Implement Mitigation Measure AES-2.</p>						X
3.10 Noise and Vibration							
Impact 3.10-1: Project construction and operation could expose persons to or generate noise levels in excess of the City of Orange and/or City of Lake Forest noise standards.	<p>NOISE-1: To reduce daytime noise impacts due to construction activities, in addition to complying with the construction hours for standard construction activities, the project applicant shall require construction contractors to implement the following measures:</p> <ul style="list-style-type: none"> Construction shall be restricted to the hours between 7:00 a.m. and 8:00 p.m., excluding Sundays or federal holidays, except as otherwise permitted by the City of Lake Forest or City of Orange. Equipment and trucks used for project construction shall use noise control techniques (e.g., mufflers, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds). Adjacent land uses within 500 feet of the construction site shall be notified about the estimated duration and hours of construction activity at least 30 days before the start of construction. A noise disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad mufflers, etc.) and would be required to resolve the noise complaints. All 	Less than significant.	X	X	X	X	X

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
	<p>notices sent to adjacent land uses within 500 feet of the construction site and all signs posted at the construction site shall list the telephone number and e-mail address for the noise disturbance coordinator.</p> <p>NOISE-2: IRWD shall secure a noise variance from the relevant jurisdiction prior to nighttime construction activities that would generate noise in excess of noise standards.</p> <p>NOISE-3: IRWD shall conduct a post-construction noise survey to ensure that operation of new equipment at the Baker WTP and Raw Water Pump Station is in compliance with the City of Lake Forest Noise Ordinance (11.16.040 Exterior Noise Standards) and City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards) at the property boundary.</p>						
Impact 3.10-2: Project construction would generate groundborne vibration and noise.	None required.	Less than significant.	X	X	X	X	X
Impact 3.10-3: Activities associated with operations of the project could increase noise levels at nearby land uses.	Implement Mitigation Measure NOISE-3 .	Less than significant.			X		
3.11 Public Services and Utilities							
Impact 3.11-1: The proposed project could result in the expansion or construction of new storm water drainage facilities.	None required.	Less than significant.					
Impact 3.11-2: The proposed project could be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.	None required.	Less than significant.					
Impact 3.11-3: The proposed project would comply with federal, state, and local statutes	None required.	Less than significant.					

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities				
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline
and regulations related to solid waste.							
Impact 3.11-4: The proposed project could affect local and regional energy supplies such that additional electrical capacity is required.	None required.	Less than significant.					
3.12 Transportation and Traffic							
Impact 3.12-1: Construction and operational activity would affect traffic in the project area.	TR-1: For installation of Pipeline Option 1 and 2, the construction contractor shall prepare and implement a Traffic Control/Traffic Management Plan prior to construction. The plan shall: <ul style="list-style-type: none"> Identify hours of construction and hours for deliveries; Include a work area delineation requiring traffic control and flagging; Identify all access and parking restrictions, pavement markings and signage requirements (e.g., speed limit, temporary loading zones); Maintain access to residence and business driveways, public facilities, and recreational resources at all times to the extent feasible; Minimize access disruptions to businesses and residences; Notify affected residents and businesses prior to the start of construction; Include a plan to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities. 	Less than significant.					X
Impact 3.12-2: Implementation of the proposed project could exceed a level of service standard established by the Orange County Transportation Authority.	None required.	Less than significant.					
Impact 3.12-3: The proposed project could substantially increase hazards due to a design	TR-2: IRWD shall obtain the necessary road encroachment permits or easements prior to	Less than significant.					X

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Impacts	Mitigation Measures	Significance after Mitigation	Proposed Project Facilities						
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline		
feature or incompatible use.	construction and would comply with the applicable conditions of approval. Implement Mitigation Measure TR-1 .							X	
Impact 3.12-4: The proposed project could result in inadequate emergency access.	TR-3: During construction of the treated water pipeline, IRWD shall require that the construction contractor notify the responsible law enforcement agencies and fire department two weeks prior to the start of work as to when and where construction would begin and end, and shall coordinate their emergency access plans and procedures accordingly. Implement Mitigation Measure TR-1 .	Less than significant.						X	
4.0 Cumulative Impacts									
Impact 4-1: The proposed project, together with related projects, could create cumulative short-term construction impacts related to air quality, hydrology and water quality, noise and vibration, and traffic and transportation	CUM-1: IRWD shall communicate and coordinate project construction activities and the project's Traffic Control Plan with the City of Lake Forest. Phasing of project construction shall be coordinated to minimize cumulative impacts to traffic and circulation.	Less than significant.			X	X		X	
Impact 4-2: Operation of the proposed project, together with related projects, could create cumulative impacts to aesthetics, air quality, storm water runoff and facilities, and traffic and transportation.	None required.	Less than significant.							

CHAPTER 1

Introduction and Project Background

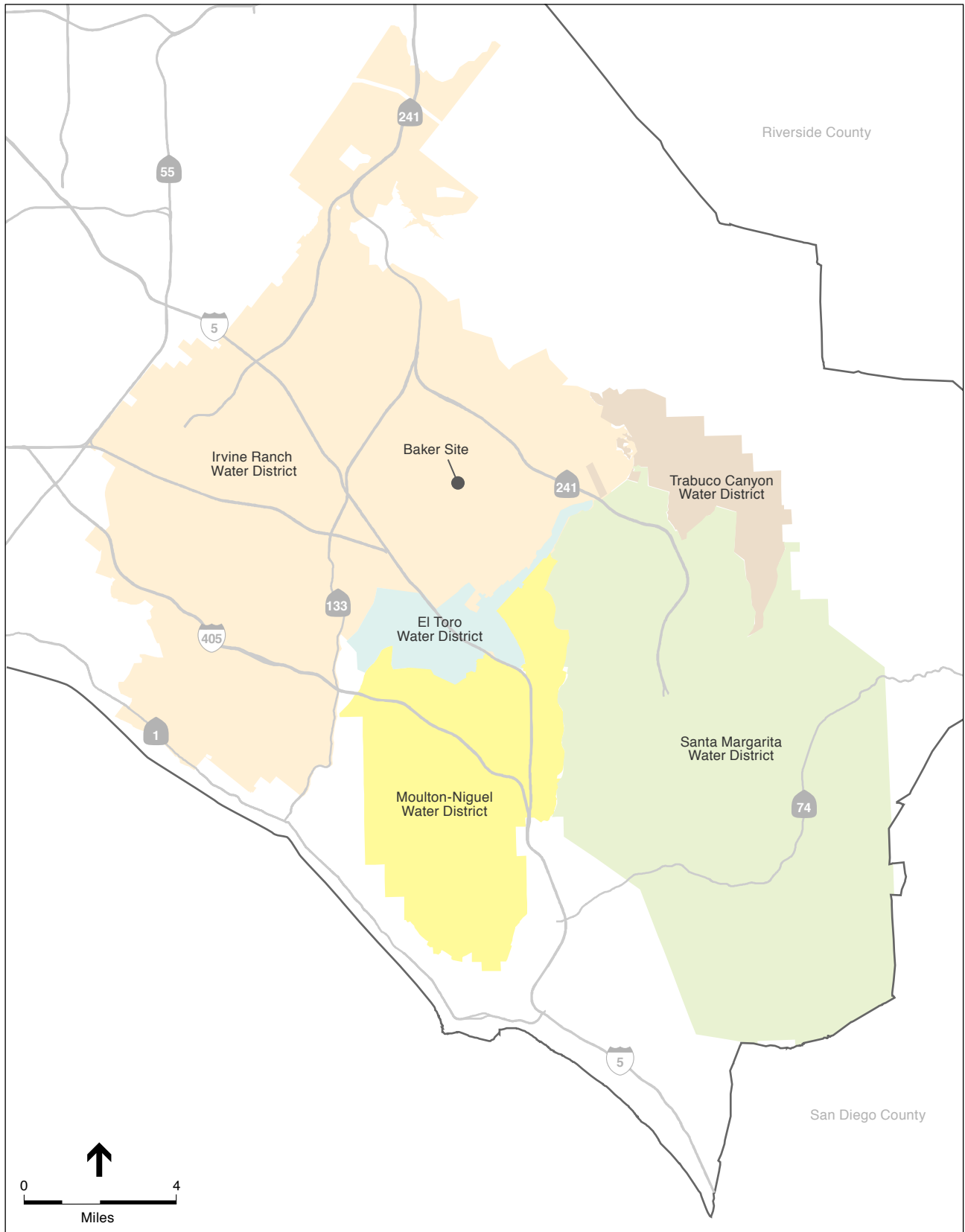
1.0 Introduction

Irvine Ranch Water District (IRWD), as the Lead Agency pursuant to the California Environmental Quality Act (CEQA), is proposing to construct the Baker Water Treatment Plant (WTP) on the site of the existing Baker Filtration Plant in the City of Lake Forest. The proposed project would provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity and distribution infrastructure for potable water. The proposed Baker WTP would have a normal operating capacity of approximately 43.5 cubic feet per second (cfs), or 28 million gallons per day (mgd), of raw water. The Baker WTP would provide treated water to IRWD customers and to the following retail water agencies in southern Orange County: El Toro Water District (ETWD), Moulton Niguel Water District (MNWD), Santa Margarita Water District (SMWD), and Trabuco Canyon Water District (TCWD) (**Figure 1-1**). These participating agencies, along with Municipal Water District of Orange County (MWDOC) and Metropolitan Water District of Southern California, are considered Responsible Agencies pursuant to CEQA. In addition to the Baker WTP, the proposed project also would include a new offsite pump station near Peters Canyon Reservoir; a meter exchange and pipeline replacement at OC-33; new non-reclaimable wastewater (NRW) pipelines to convey NRW from the Baker WTP to IRWD's sanitary sewer system; and either a new treated-water connection to the Allen-McColloch Pipeline or a new pipeline to convey treated water from the Baker WTP to the South County Pipeline (SCP).

1.1 Purpose of the EIR

IRWD has prepared this Draft Environmental Impact Report (Draft EIR) assessing potential adverse effects on the local and regional environment associated with construction and operation of the Baker WTP (proposed project). This Draft EIR has been prepared pursuant to the California Environmental Quality Act of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3.

This Draft EIR describes the environmental impacts of the proposed project and suggests mitigation measures where necessary to reduce impacts to a less than significant level. The impact analyses are based on a variety of sources, including agency consultation, technical studies and field surveys. IRWD will use this EIR to consider implementation of the proposed project. As Lead Agency, IRWD may use this EIR to approve the proposed project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts.



SOURCE: Cal-Atlas Geospatial Clearinghouse; ESA, 2009.

IRWD Baker WTP Draft EIR . 208671

Figure 1-1
Partner Water Agencies

1.2 Organization of this EIR

The chapters of this Draft EIR are as follows:

- ES. Executive Summary.** This chapter summarizes the contents of the Draft EIR.
- 1. Introduction and Project Background.** This chapter discusses the CEQA process and the purpose of the EIR, and background information for the proposed project.
 - 2. Project Description.** This chapter provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.
 - 3. Environmental Setting, Impacts and Mitigation Measures.** This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Agricultural and Forestry Resources; Air Quality and Greenhouse Gas Emissions; Biological Resources; Cultural Resources; Geology, Soils and Mineral Resources; Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Planning and Recreation; Noise and Vibration; Public Services and Utilities; and Transportation and Traffic. Measures to mitigate the impacts of the proposed project are presented for each resource area where significant potential impacts have been identified.
 - 4. Cumulative Impacts.** This chapter describes the potential impacts of the proposed project when considered together with other related projects in the project area.
 - 5. Growth Inducement.** This chapter summarizes population projections and water demands within the IRWD service area and describes the potential for the proposed project to induce development.
 - 6. Alternatives Analysis.** This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered.
 - 7. Report Preparers.** This chapter identifies those involved in preparing this Draft EIR, including persons and organizations consulted

1.3 CEQA Process

1.3.1 Notice of Preparation

In accordance with Sections 15063 and 15082 of *CEQA Guidelines*, IRWD, as Lead Agency, prepared and circulated a Notice of Preparation (NOP) (see **Appendix A**) on May 19, 2010. The NOP was mailed to approximately 47 interested parties, including local, state, and federal agencies and news publications. Additionally, 729 Notices of Availability of the NOP were mailed to residents immediately surrounding the Baker site and other groups or individuals who had previously expressed interest in the project. A Notice of Completion (NOC) was also

prepared by IRWD and sent to the State Clearinghouse. Copies of the NOP were made available for public review at the Orange County Public Library, El Toro Branch in Lake Forest, the City of Orange Public Library, and IRWD's internet site.

The NOP provided a general description of the facilities associated with the proposed project, a summary of the probable environmental effects of the project to be addressed in the EIR, and a figure showing the project location. The NOP provided the public and interested public agencies with the opportunity to review the proposed project and to provide comments or concerns on the scope and content of the environmental review document including: the range of actions; alternatives; mitigation measures, and significant effects to be analyzed in depth in the EIR.

The 30-day project scoping period, which began with the distribution of the NOP, remained open through June 17, 2010.

1.3.2 Public Scoping Meeting

CEQA recommends conducting early coordination with the general public, appropriate public agencies, and local jurisdictions to assist in developing the scope of the environmental document. Pursuant to *CEQA Guidelines* §15083, a public scoping meeting was held on May 26, 2010 to allow agency consultation and public involvement for the Draft EIR at IRWD in Irvine. Public notices were placed in local newspapers informing the general public of the scoping meetings and the availability of the NOP. Public notices also were mailed directly to residents in the immediate vicinity of the Baker site to inform them of the scoping meeting and the availability of the NOP. The purpose of the meetings was to present to the public the proposed project and its potential environmental impacts. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the proposed project.

The comments received during the NOP review period were considered during preparation of the Draft EIR. Issues not related to the scope of the proposed project or not related to environmental effects (e.g., financing) are not addressed in the Draft EIR but may be considered by IRWD before making a final decision on the proposed project. Please refer to **Appendix A** for comments received during the scoping period and information related to the circulation of the NOP.

1.3.3 Draft EIR

This Draft EIR contains a description of the proposed project, description of the baseline environmental setting, identification of project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives. The Draft EIR addresses the potential environmental effects of implementing the proposed project.

Significance criteria have been developed for each environmental resource analyzed in this Draft EIR, and are defined at the beginning of each impact analysis section. Impacts are categorized as follows:

- **Significant and Unavoidable:** mitigation might be recommended but impacts are still significant.
- **Less than Significant with Mitigation:** potentially significant impact but mitigated to a less-than-significant level;
- **Less than Significant:** mitigation is not required under CEQA but may be recommended; or
- **No Impact.**

CEQA requires that a lead agency avoid, or substantially lessen significant impacts where feasible (*CEQA Guidelines* §15091 and §15092). If such a reduction is not possible, a lead agency must adopt Findings and a Statement of Overriding Considerations. As defined in *CEQA Guidelines* §15093, a Statement of Overriding Considerations balances the benefits of a project against its unavoidable environmental consequences.

1.3.4 Public Review

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

DATE: Wednesday, February 9, 2011
 TIME: 6:30 p.m. doors open / 7:00 p.m. presentation begins
 LOCATION: Irvine Ranch Water District
 15600 Sand Canyon Avenue
 Irvine, California 92618

Written comments on the Draft EIR must be received at the following address prior to the end of the 45-day review period.

Paul Weghorst
 Principal Water Resources Manager
 Irvine Ranch Water District
 15600 Sand Canyon Ave.
 Irvine, CA 92618-3102

1.3.5 Final Environmental Impact Report

Written and oral comments received in response to the Draft EIR will be addressed in a Response to Comments document which, together with the Draft EIR, will constitute the Final EIR. IRWD will then consider EIR certification (*CEQA Guidelines* §15090). Once the EIR has been certified, IRWD may proceed to consider project approval. Prior to approving the project, IRWD must make written findings with respect to each significant environmental effect identified in the EIR in accordance with Section 15091 of *CEQA Guidelines*.

CEQA requires that the lead agency neither approve nor implement a project unless the project's significant environmental effects have been reduced to a less than significant level, essentially "eliminating, avoiding, or substantially lessening" the expected impacts. If the lead agency approves the project despite residual significant impacts that cannot be mitigated to a less than significant level, the agency must state the reasons for its action in writing. The Statement of Overriding Considerations must be included in the record of the project approval.

1.3.6 Mitigation Monitoring and Reporting Program

State law requires lead agencies to adopt a mitigation monitoring and reporting program for those changes to the project that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The *CEQA Guidelines* do not require that the specific reporting or monitoring program be included in the EIR. Throughout this EIR, however, proposed mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring program. All adopted measures will be included in a mitigation monitoring and reporting program to verify compliance.

1.4 Project Background

1.4.1 Irvine Ranch Water District

IRWD was established in 1961 as a California Water District pursuant to the California Water District Law (California Water Code, Division 13). IRWD provides potable and recycled water, sewage collection and treatment, and urban runoff treatment to municipal and industrial (M&I) and agricultural customers within an 115,531-acre service area in Orange County, California. The IRWD service area includes all of the City of Irvine and portions of Tustin, Newport Beach, Costa Mesa, Orange and Lake Forest. Currently, 75 to 80 percent of the water IRWD provides for its customers comes from local sources, including groundwater (produced from the groundwater basin managed by Orange County Water District), surface water, and recycled water (from IRWD's Michelson and Los Alisos Water Recycling Plants). Less than 25 percent of IRWD's water supply is imported by the Metropolitan Water District of Southern California (Metropolitan or MWD) and purchased by IRWD through the Municipal Water District of Orange County (MWDOC). MWD imports water through both the State Water Project (SWP) and the Colorado River Aqueduct systems.

In 2001, IRWD completed a consolidation with Los Alisos Water District (LAWD), which served portions of the City of Lake Forest. The existing Baker Filtration Plant (BFP), located on Wisteria in Lake Forest, was one of the facilities owned and operated by LAWD that is now owned by IRWD. The BFP was operational from 1971 to 1983, and was decommissioned when the Allen-McColloch Pipeline was constructed. All BFP facilities are currently non-operational although remain onsite, including reservoirs, a filter plant, pump stations, and storage/office buildings (RBF/Carollo, 2010). IRWD has additional facilities in and around the BFP site that provide filtered water as a supplement to its recycled water system (IRWD, 2010).

1.4.2 Santiago Aqueduct Commission Report

For a number of years, water agencies in south Orange County have investigated alternatives for improving both water supply and water system reliability. South Orange County receives the majority of its potable water from MWDOC via Metropolitan's Diemer Filtration Plant and the Allen-McColloch Pipeline (AMP). In December 1999, the AMP ruptured causing significant reduction in Metropolitan's supplies to southern Orange County, demonstrating the dependence of this region on AMP operation. In 2007, a study was undertaken by the Santiago Aqueduct Commission (SAC) to determine the feasibility of constructing a new water treatment plant along the SAC-owned Baker Pipeline. The SAC is comprised of IRWD, ETWD, MNWD, SMWD, TCWD, and MWDOC. The product water from such a facility would provide an additional supply of treated water to southern Orange County, creating redundant treatment and distribution capacity to the Diemer Filtration Plant and AMP. The study recommended the Baker site as the location for such a facility to take advantage of already existing infrastructure.

1.4.3 Regional Water Distribution System

The proposed project includes or is in proximity to several regional water distribution facilities as described below and shown in **Figure 1-2**. These facilities would carry raw water to, or treated water from, the proposed Baker WTP.

Santiago Lateral: The Santiago Lateral is an 8.7-mile long pipeline that is owned by MWD and distributes raw water from the SWP and Colorado River systems. The Santiago Lateral delivers raw water to Irvine Lake or the Baker Pipeline from Lake Matthews via MWD's Lower Feeder. The Santiago Lateral connects to the Baker Pipeline at the OC-33 turnout and connects to Irvine Lake at the OC-13 turnout.

Baker Pipeline: The Baker Pipeline (formerly the Santiago Aqueduct) is owned jointly by the SAC with several agencies having capacity rights, such as IRWD, County of Orange, East Orange Water District, SMWD, TCWD, and The Irvine Company. The Baker Pipeline currently conveys untreated water received via the Santiago Lateral to agricultural interests in Orange County and to TCWD. The Baker Pipeline terminates at the Baker site and is currently operating at approximately 15 percent capacity. The proposed project would significantly increase its utilization.

Irvine Lake and Pipeline: Irvine Lake, located at the base of the mountains in Cleveland National Forest, can store up to 28,000 acre feet (af) of water behind Santiago Dam with a surface area of approximately 700 acres. Irvine Lake is fed by Santiago Creek and also receives imported water via the Santiago Lateral. The lake captures approximately 7,000 af of local runoff per year (RBF/Carollo, 2010). IRWD is a partial owner of the lake together with Serrano Water District. Serrano Water District runs the lake's concessions and recreational fishing and boating activities. Irvine Lake supplies water to IRWD and Serrano Water District through the Irvine Lake Pipeline. IRWD currently delivers untreated water from Irvine Lake to irrigation customers via the Irvine Lake Pipeline.

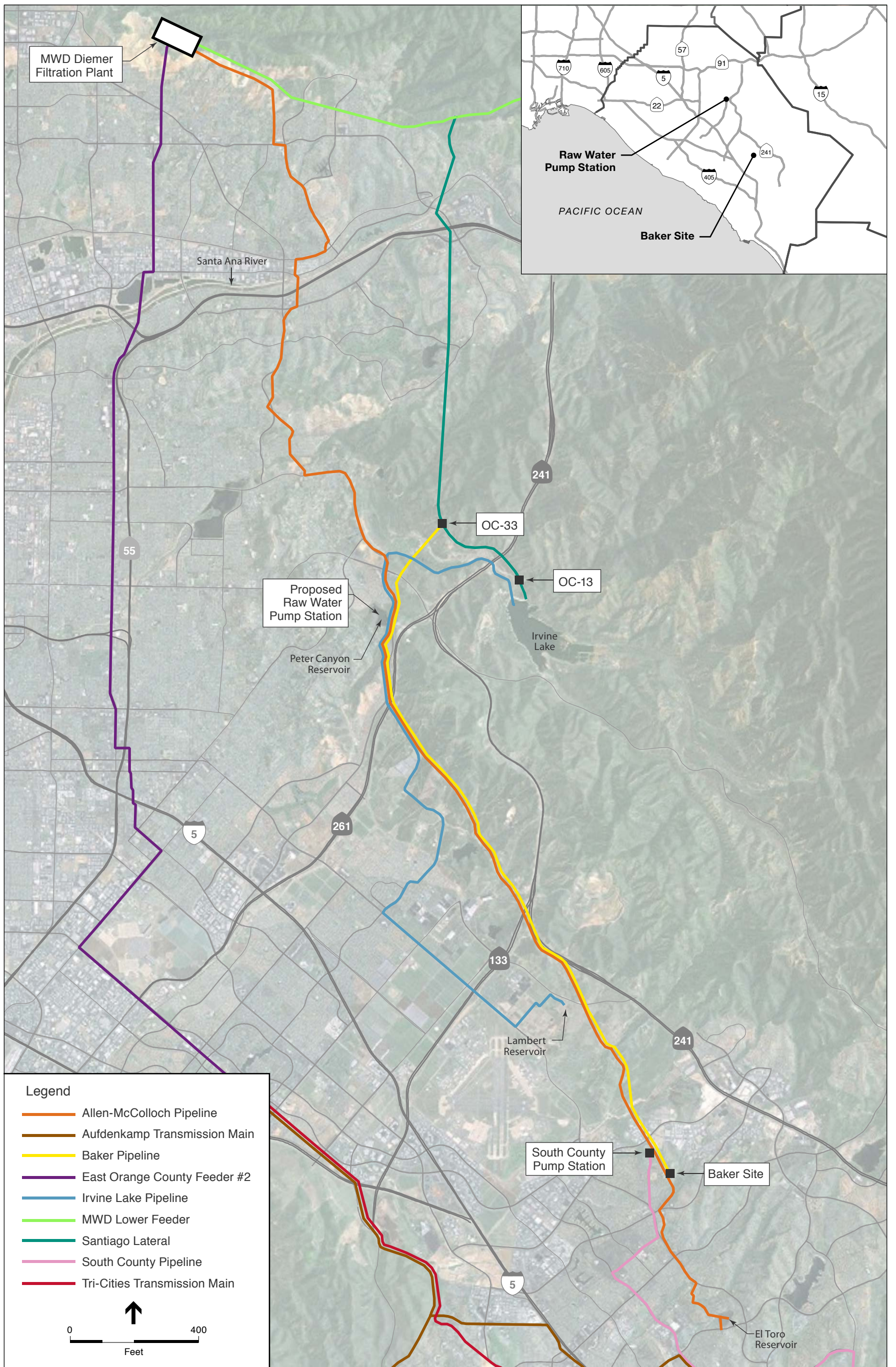
Baker/Irvine Lake Pipeline Intertie: The Baker/Irvine Lake Pipeline Intertie enables the transfer of water from the Baker Pipeline to the Irvine Lake Pipeline and vice versa. The Intertie is owned and operated by IRWD and is located on land owned by the SAC.

Allen-McColloch Pipeline (AMP): The AMP distributes treated water from MWD's Diemer Filtration Plant to several water districts in southern Orange County and terminates at El Toro Reservoir. The AMP bisects the Baker site, running parallel to the Baker Pipeline.

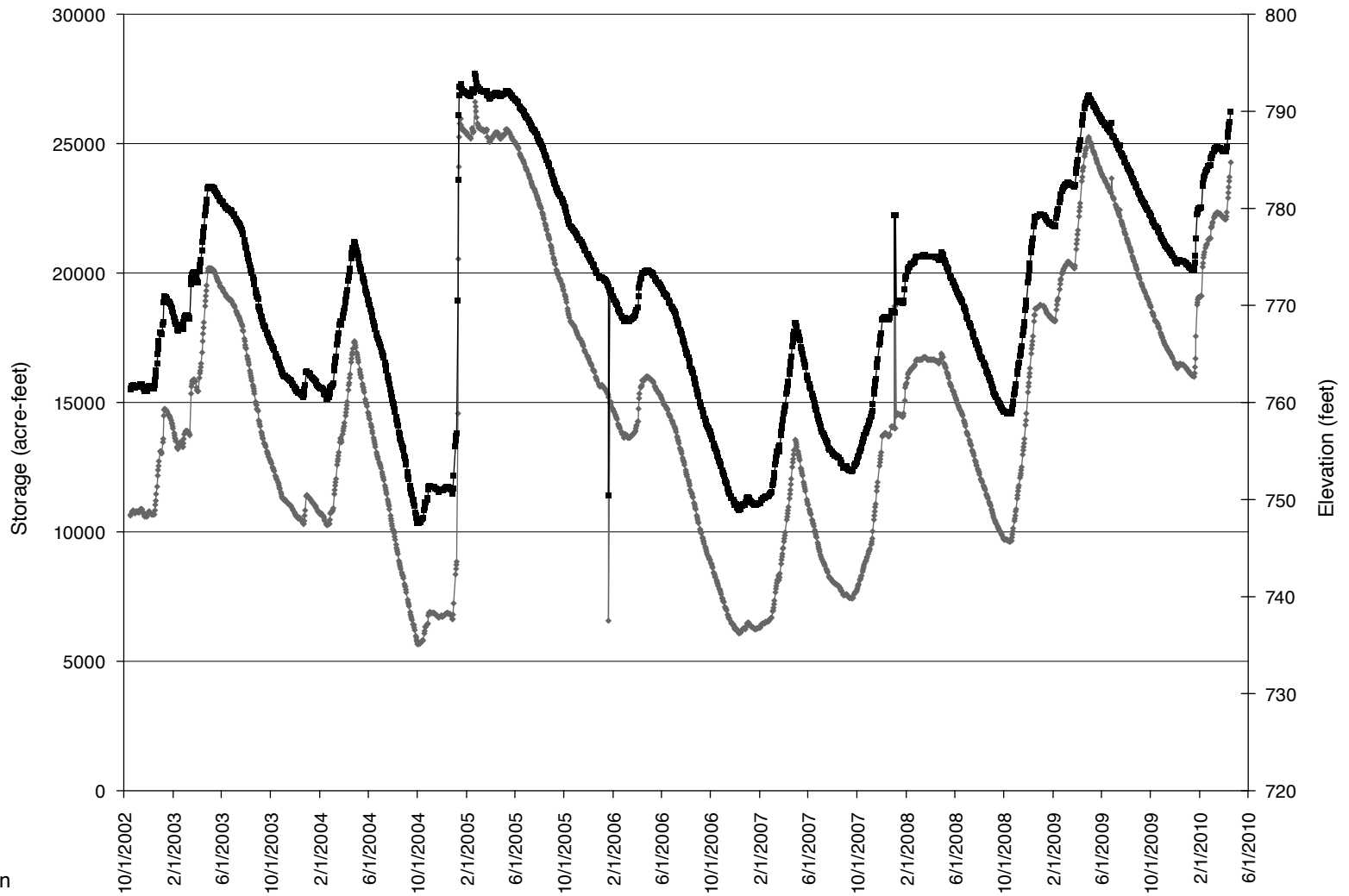
South County Pump Station and Pipeline: The AMP extends from the Diemer Filtration Plant to El Toro Reservoir with connections at Peters Canyon Pump Station, South County Pump Station and the Baker Filtration Plant. At the South County Pump Station, water is diverted from the AMP to the South County Pipeline for distribution to MNWD, SMWD, and TCWD before terminating in Rancho Santa Margarita

1.4.4 Irvine Lake Operations

IRWD operates Irvine Lake to maximize water storage for use during the dry season. The water surface elevation (WSEL) at Irvine Lake typically ranges between 750 and 790 feet, as illustrated in **Figure 1-3**. Lake levels fluctuate seasonally with water supply availability, precipitation, and demands from customers. Typically, the lake is filled during the winter months by storm water runoff in the watershed and excess imported water delivered via the Santiago Lateral. The lake reaches its maximum storage capacity when the WSEL reaches 790 feet, which corresponds to a storage volume of approximately 28,000 af (see Figure 1-3). The lake has been filled to maximum capacity in recent years, including 2005, 2009, and 2010. The water stored in the lake is gradually depleted over summer and fall months, to accommodate dry season demands. As shown in Figure 1-3, minimum lake levels typically do not drop below approximately 750 feet.



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SOURCE: ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 1-3
Irvine Lake Levels
(2002 – Present)

CHAPTER 2

Project Description

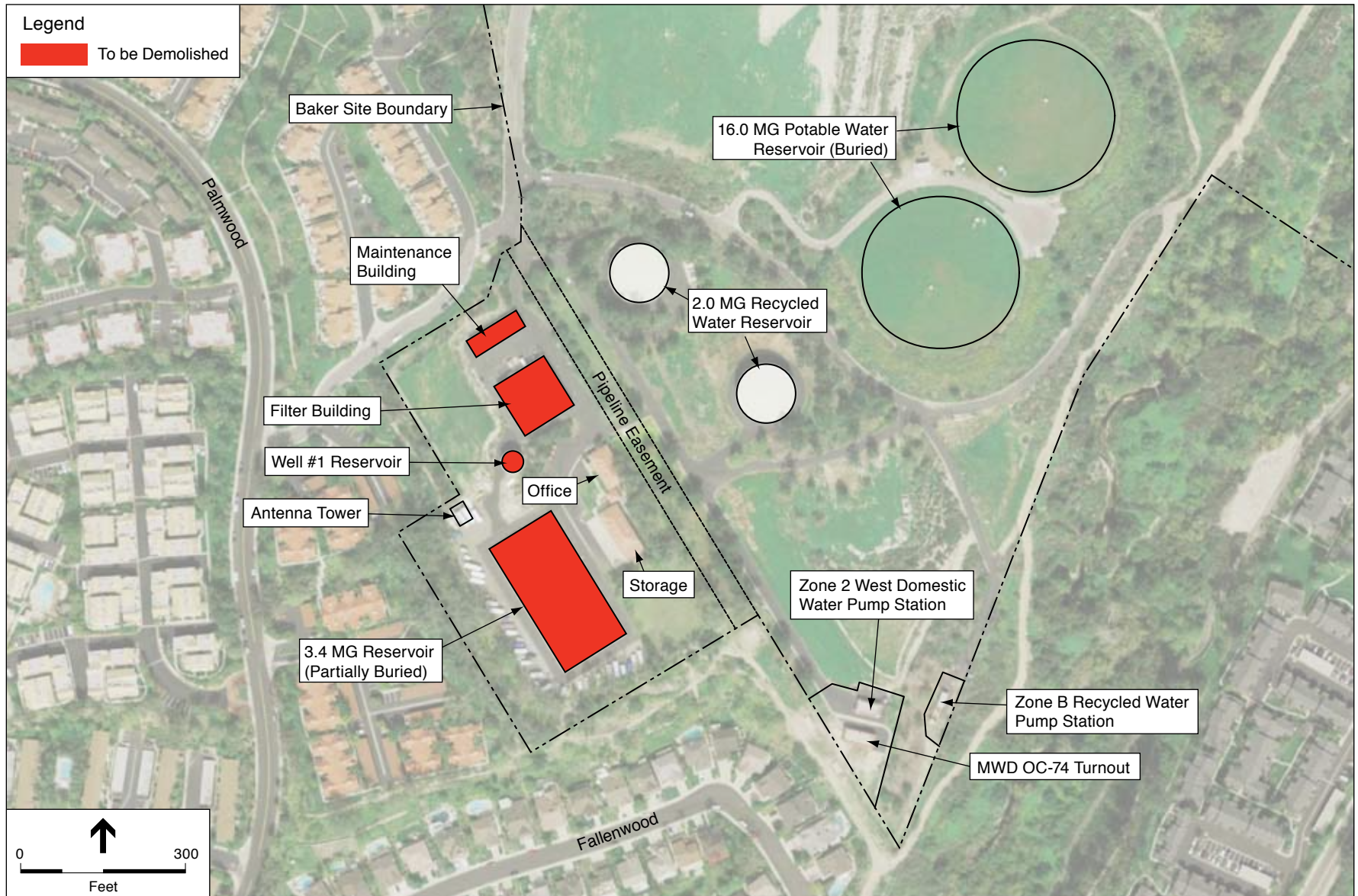
2.0 Introduction

IRWD is proposing to construct the Baker WTP Project (proposed project) to provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity for potable water. The proposed Baker WTP would have a normal operating capacity of 43.5 cfs (28 mgd) and would treat raw water from variable supply sources. The proposed Baker WTP would provide redundant treatment capacity to MWD's Diemer Treatment Plant on a regular basis and in the event of planned or unplanned outages of MWD facilities. The project would not increase the capacity of regional treated water distribution pipelines, but rather improve regional potable water system reliability and operational flexibility. As described in Chapter 1, the Baker WTP would provide treated water to IRWD and four partner water agencies in southern Orange County: ETWD, MNWD, SMWD, and TCWD. In addition to the Baker WTP, the proposed project also would include a new offsite pump station near Peters Canyon Reservoir; a meter exchange and pipeline replacement at OC-33; a new sewer pipeline to convey non-reclaimable waste (NRW) from the Baker WTP to IRWD's sanitary sewer system; and may include new pipelines to convey treated water from the Baker WTP to the South County Pipeline.

2.1 Project Location

The proposed Baker WTP would be constructed on the southernmost portion of a 98-acre parcel in the City of Lake Forest at the site of the existing BFP. The existing facilities at the Baker site are shown on **Figure 2-1**. Existing facilities include, but are not limited to, BFP facilities, such as the reservoirs, filter plant, and storage/office buildings, and other IRWD facilities such as pump stations and the antenna tower (RBF/Carollo, 2010). The AMP and Baker Pipeline also currently bisect the site. The BFP facilities are currently non-operational.

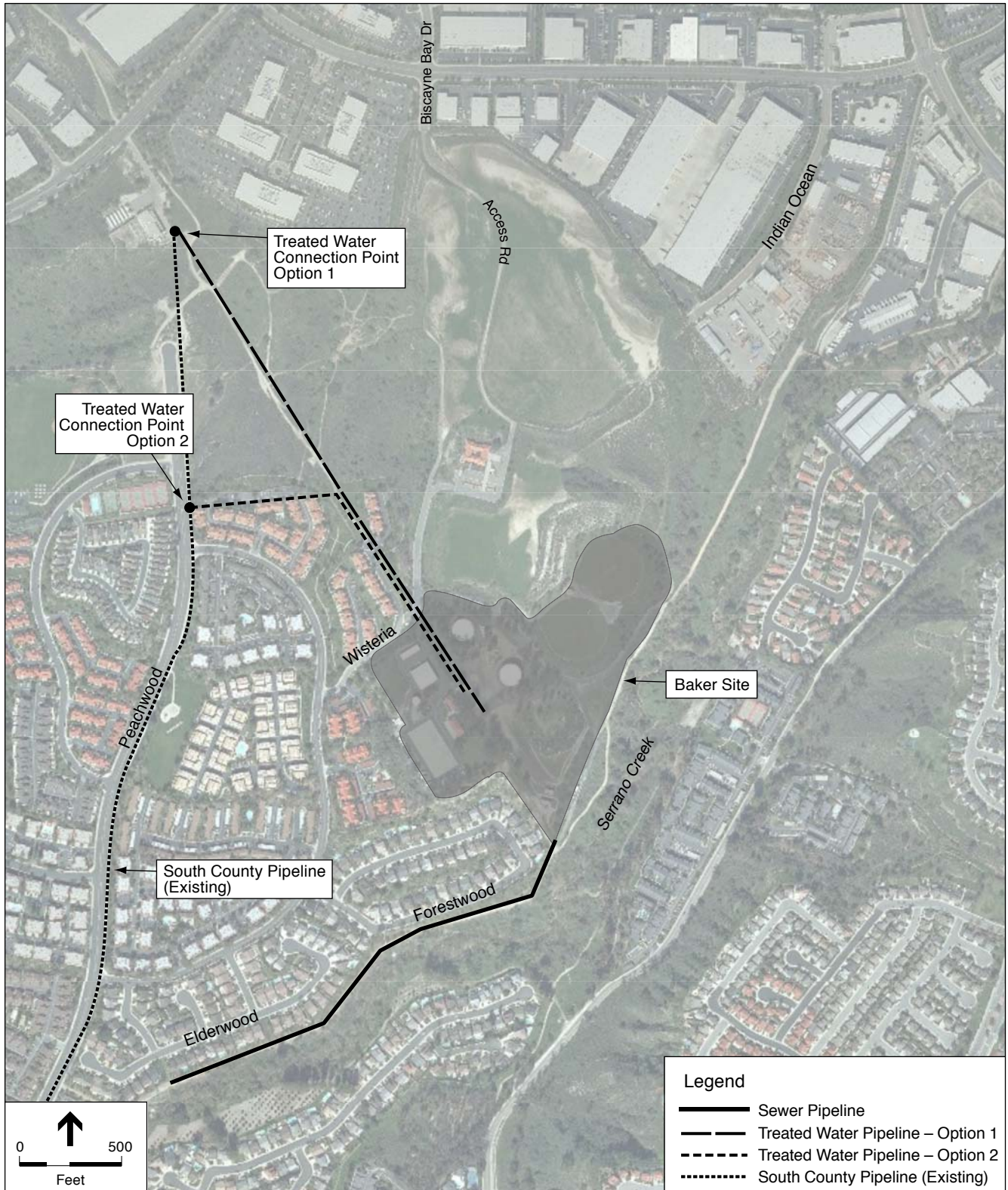
A new sewer pipeline would convey NRW from the Baker WTP to IRWD's sanitary sewer system. The pipeline would be located within an existing 15-foot utility easement along the Serrano Creek Trail in the City of Lake Forest (**Figure 2-2**). In addition, a new pipeline may be required to convey treated water from the Baker WTP to the South County Pipeline. The corridor for this potential pipeline would run from the Baker WTP through primarily open space lands adjacent to residential areas (Figure 2-2). Both pipeline alignments would be located within Non-Reserve Lands in the Central Subarea of the Orange County Natural Community Conservation Plan (NCCP).



SOURCE: GlobeXplorer; RBF Consulting; Carollo; ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 2-1
 Existing Baker Site



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 2-2
Baker Site and
Proposed Pipelines

The proposed Raw Water Pump Station would be located near Peters Canyon Reservoir in the City of Orange, at the site of the existing Baker/Irvine Lake Pipeline Intertie facilities (**Figure 2-3**). The proposed pump station would be located on land currently owned by the Santiago Aqueduct Commission (SAC), of which IRWD is a member.

The proposed project requires a meter exchange and pipeline replacement at OC-33, which is located in an unincorporated area of the County of Orange in the hills east of Irvine Regional Park (**Figure 2-4**). OC-33 is located within an easement owned by MWD.

2.2 Project Objectives

The proposed Baker WTP is a regional project that is intended to:

- Improve water reliability to areas of south Orange County by constructing local treatment capability for a variable supply source (imported water from MWD and local Irvine Lake water).
- Provide a reliable, local potable water supply in the event of emergency conditions or scheduled maintenance of MWD's delivery system.
- Increase operational flexibility by creating redundancy within the raw water supply system.

2.3 Project Description

2.3.1 Raw Water Sources

Sources of raw water for the proposed project would include imported raw water supplied by MWD and water from Irvine Lake, which consists of imported water and local runoff. Raw water would be delivered to the Baker WTP via the existing Baker Pipeline, which originates east of Irvine Regional Park and the City of Orange and terminates at the existing Baker site in the City of Lake Forest. Both raw water sources would be conveyed using existing pipeline facilities, including the MWD Lower Feeder, MWD Santiago Lateral, Baker Pipeline, and Irvine Lake Pipeline. Imported raw water would enter the Santiago Lateral from the Lower Feeder upstream of the Diemer Treatment Plant. Then, imported water would enter the Baker Pipeline from the Santiago Lateral at the OC-33 turnout (See Figure 1-2 in Chapter 1). Raw water from Irvine Lake would be used when the lake is full during wet years and in the event of an outage of the Lower Feeder and Santiago Lateral. Raw water from Irvine Lake would be conveyed to the Baker WTP via the Irvine Lake Pipeline and the Baker Pipeline. In order to convey flow through both pipelines, a new Raw Water Pump Station in the City of Orange is planned to boost water from the Irvine Lake Pipeline into the Baker Pipeline.



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 2-3
Raw Water Pump Station



SOURCE: ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 2-4
OC-33 Meter Exchange

Irvine Lake is operated by IRWD and Serrano Water District. Operating water surface elevation (WSEL) at the lake ranges between 750 feet above mean sea level (amsl) and 790 feet amsl annually (See Figure 1-3 in Chapter 1). In addition to capturing natural runoff, Irvine Lake is filled with imported water that is conveyed to the lake via the Santiago Lateral at the OC-13 turnout. Typically, the lake is filled with imported water during the month of April after the rainy season has ended. The lake is drawn down during the summer and fall. The proposed project would not significantly change the current operating scheme for Irvine Lake. The WSEL would continue to fluctuate between 750 and 790 feet amsl. Raw water from Irvine Lake would continue to be used to serve existing agricultural customers in addition to intermittent or emergency use at the Baker WTP.

2.3.2 OC-33 Meter Exchange

The meter at OC-33 consists of a concrete vault, control panel and equipment for radio communication. For the proposed project, a new meter would be installed in the vault, along with reinstallation of a portion of pipeline upstream of the meter (Figure 2-4). The exchange of the meter will require work within the meter vault; replacement of the pipeline segment will require excavation and grading. Construction at OC-33 would temporarily suspend raw water supplies to downstream agricultural users. Suspension of supplies would be coordinated with each agricultural user to prevent adverse effects to their operations.

2.3.3 Raw Water Pump Station

To deliver water from Irvine Lake to the Baker Pipeline, a new Raw Water Pump Station facility would be constructed in place of the existing Baker/Irvine Lake Pipeline Intertie near Peters Canyon Reservoir (Figure 2-3). The existing Intertie facility is a 600 square foot building (20 feet by 30 feet) that contains aboveground piping, a large diameter vault, and the intertie valve connecting the Baker Pipeline to the Irvine Lake Pipeline. The existing building would be demolished and enlarged to house three new 300-horsepower pumps, a control valve, and two pressure relief valves to convey water from the Irvine Lake Pipeline into the Baker Pipeline. The existing facilities that transfer water from the Baker Pipeline to the Irvine Lake Pipeline would be maintained during demolition and construction with possible temporary shut downs.

The proposed Raw Water Pump Station building would be designed with a similar appearance as the existing neighboring buildings onsite. The building would have an approximate footprint of 30 by 60 feet (1800 square feet) and a height of approximately 20 feet, similar to the height of the existing Intertie facility. In addition, a 12-foot diameter external surge tank would be installed outside next to the pump station within an area approximately 30 by 50 feet (1500 square feet). The surge tank would be two feet off the ground for a total height of 14 feet and width of 28 feet. An eight-foot high wall would be constructed to screen the view of the surge tank from surrounding streets.

2.3.4 Baker WTP

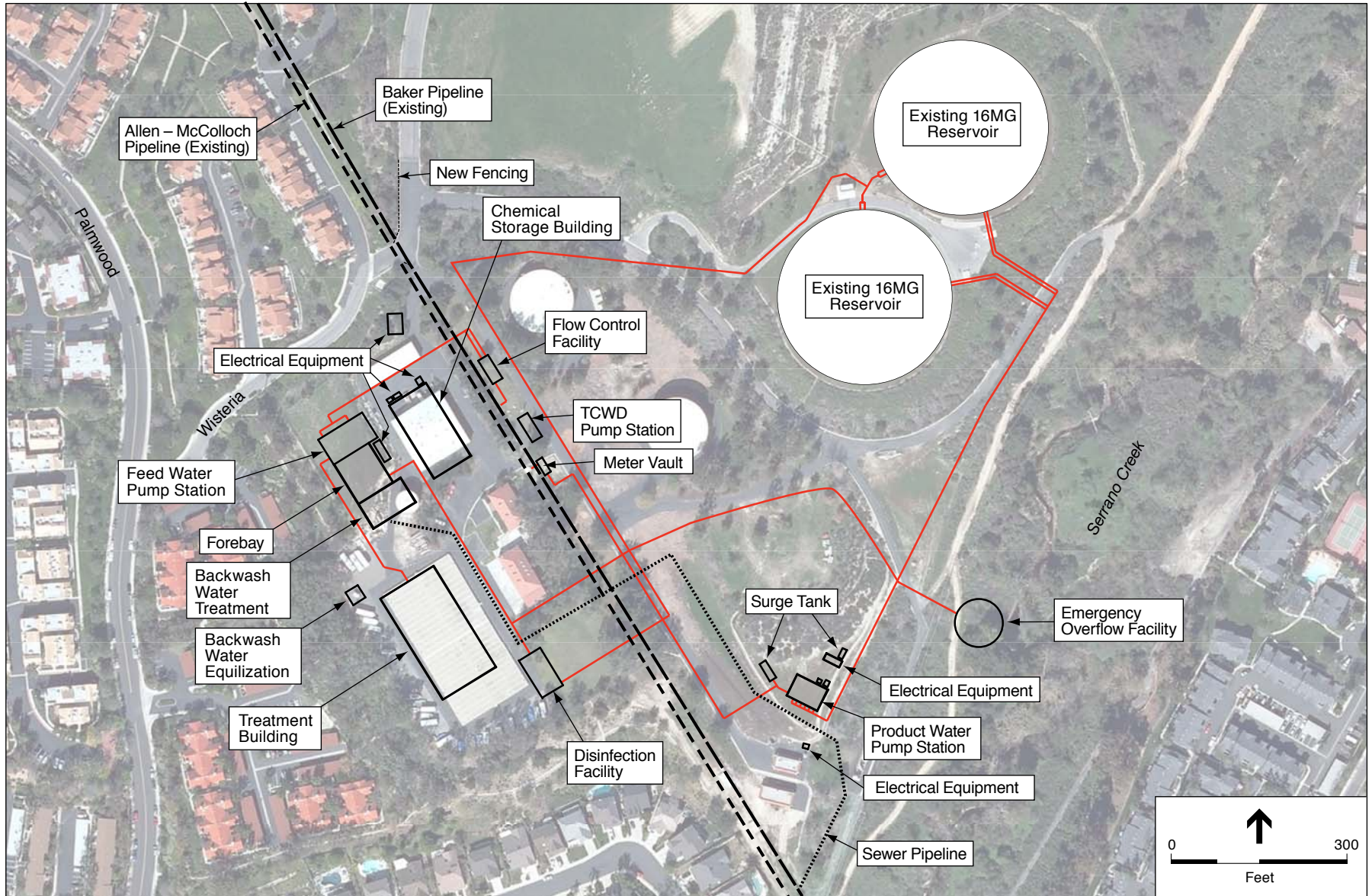
The proposed Baker WTP would utilize membrane filtration, ultraviolet light for disinfection, and chloramination for secondary or residual disinfection (RBF/Carollo, 2010). The proposed WTP would include new facilities for raw water conveyance, water treatment, treated water delivery, and NRW disposal. The quality of water produced at the Baker WTP would meet all existing rules and regulations applicable to the treatment of surface water in the State of California. The proposed layout for the WTP facilities is shown in **Figure 2-5**.

The proposed project would require demolition of the existing Baker Filter Building, 3.4 MG reservoir, maintenance building, and Well #1 Reservoir (Figure 2-1). Both of the two 16-MG buried concrete reservoirs would remain in place and be used for storage of the treated product water.

The following new facilities would be constructed at the proposed Baker WTP as shown in Figure 2-5 and **Figure 2-6** and described further below.

- **Raw Water Conveyance Facilities:** flow control facility, TCWD pump station, forebay, feed water strainers, feed water pump station; and about 1,000 feet of new 42-inch feed water pipeline.
- **Treatment Facilities:** treatment building to house membrane filters and UV facilities, disinfection facility, backwash water treatment facilities, chemical storage building, standby generator, electrical equipment.
- **Treated Water Facilities:** product water pump station, surge tanks, standby generator, electrical equipment, new 36-inch and 42-inch product water pipelines, meter vault.
- **Emergency Overflow Facilities:** 42-inch pipeline and discharge structure to convey overflow water from the forebay and disinfection facility to Serrano Creek.
- **Site Access Facilities:** access during construction via Biscayne Bay Drive and existing access road; access during plant operation via Palmwood/Wisteria, Biscayne Bay Drive, and/or Indian Ocean Avenue; Wisteria gate relocation and new security fencing.

The aboveground Baker WTP facilities would be designed to be compatible with existing buildings onsite at the BFP. The architectural theme would include concrete masonry unit (CMU) block walls, steel deck roofs, and aluminum frame doors and windows (RBF/Carollo, 2010). The building designs would attenuate the sound levels of mechanical equipment to be in compliance with City of Lake Forest noise ordinances at the Baker WTP property line. The proposed Baker WTP would require a computerized supervisory control and data acquisition (SCADA) system to allow for remote control and monitoring of equipment, in addition to local control and monitoring. The Baker WTP SCADA system would be integrated into IRWD's existing district-wide SCADA system, which is used to communicate with IRWD facilities and ensure coordination and proper operation of IRWD facilities and systems throughout the service area. Operation of the Baker WTP SCADA system may require minor alterations to the existing antennae tower, which currently is part of IRWD's existing district-wide SCADA system.



SOURCE: RBF Consulting; Carollo; ESA, 2010.

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Figure 2-5
Proposed Baker
Water Treatment Plant



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 2-6
Baker Site Access

Raw Water Conveyance Facilities

The Flow Control Facility (FCF) is the point of entry for raw water at the WTP. The FCF would be constructed as a buried vault with a roof slab surrounded by a retaining wall with a height of approximately eight feet. The FCF would control water delivery to the forebay. In addition, raw water strainers may be constructed to prevent solids from depositing in the forebay. The raw water would pass through strainers just prior to the FCF.

Currently TCWD receives raw water via the Baker Pipeline. TCWD has a 16-inch pipeline connection to the Baker Pipeline onsite at the existing Baker site, which leads to TCWD's Dimension Treatment Plant. To maintain deliveries of raw water to TCWD, in conjunction with delivery of raw water to the proposed Baker WTP, a pump station is required. The TCWD pump station would be located onsite at the Baker WTP and would be constructed aboveground, inside a block wall building. The pump station capacity of 6 cfs would be achieved with three 25-HP pumps (two duty, one standby).

The forebay would be a partially-buried, cast-in-place concrete reservoir, with a height approximately one to two feet above grade. The forebay would provide flow equalization for water entering the WTP. The feed water pump station would feed raw water from the forebay to the strainers prior to reaching the membrane filtration system. The feed water pump station would be enclosed in a 30-foot high building on top of the forebay, and would contain the feedwater strainers and a total of six 300-HP pumps (five duty, one standby) each with a capacity of approximately 4,900 gallons per minute (gpm).

Treatment Facilities

The treatment building would house the treatment facilities, including the membrane filtration system (MFS), UV disinfection system, and the control room. The treatment building would be a single-story building with a footprint of approximately 100 feet by 200 feet (20,000 sf) and an approximate height of 35 feet. After passing through the MFS and UV system, treated water would be conveyed to the disinfection facility. The disinfection facility would consist of a partially-buried concrete chlorine contact basin, with a height approximately six to nine inches above grade. After passing through the chlorine contact basin, treated water would be conveyed to the existing 16-MG reservoirs for storage and distribution.

The chemical storage building would be a single-story building with a footprint of approximately 75 feet by 150 feet (11,250 sf) and an approximate height of 33 feet. The building would contain chemical storage tanks, pumps, and chemical containment areas and would have an HVAC system and fire suppression system.

The backwash water treatment system would process residual water from the MFS and the strainers, recycling water back to the forebay and conveying NRW to the sanitary sewer. The backwash system would consist of a concrete tank at grade with a water equalization basin containing submersible pumps, a flocculation basin, and sediment basin.

Treated Water Facilities

The product water pump station (PWPS) would pump treated water from the storage reservoirs to the AMP or SCP for delivery to the partner water agencies. IRWD would receive treated water from the storage reservoirs by gravity, into the Lake Forest Zone 1 system. The PWPS would have a capacity of 33 cfs and would consist of five pumps (four duty, one standby). Each pump would have a capacity of 3,700 gpm and be driven by 300-HP motors. The PWPS would be an enclosed concrete block masonry building, with a footprint of approximately 50 feet by 60 feet (3,000 sf) and a height of 25 feet.

Emergency Overflow

There are two free-surface basins planned at the Baker site: the forebay and chlorine contact basin. Each of these facilities would be constructed as a concrete tank with an overflow. Under possible, yet infrequent conditions, the Baker WTP may require discharge of raw water from the forebay, or filtered water from the chlorine contact basin, up to 54 cfs. To handle the flow, a 42-inch diameter reinforced concrete pipeline would be constructed to enable water overflows to be conveyed to Serrano Creek east of the Baker site (Figure 2-5). The discharge structure would be approximately 10 feet by 13.5 feet and would include approximately 42 feet of rip-rap to dissipate flow and prevent erosion, siltation, and sedimentation in the creek.

Serrano Creek is part of the San Diego Creek/Peters Canyon Wash subwatershed, which is the largest subwatershed in the Newport Bay watershed and collectively drains into the northeastern end of Upper Newport Bay. Therefore, Serrano Creek is considered a Traditionally Navigable Water, is considered “waters of the U.S.,” and is subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), as well as within the jurisdiction of the California Department of Fish and Game (CDFG). Construction of the discharge structure within the creek may require permits from CDFG, USACE, and the State Water Resources Control Board (SWRCB).

Site Access Facilities

During project construction, all construction vehicles would access the Baker site via Commercentre Drive, Biscayne Bay Drive, and the existing paved access road north of the Baker site (See Figure 2-6). During project operation, delivery vehicles and staff vehicles would access the Baker site either via Commercentre Drive/Biscayne Bay Drive or via Palmwood and Wisteria (see Figure 2-6). The front gate near Wisteria would be relocated as shown in Figure 2-6 to ensure safe passage for vehicles accessing the site from both entry points and protect public safety.

Planned future development on the vacant land north of the Baker site would include construction of new roadways. When and if such development is completed, instead of Biscayne Bay Drive, vehicles would access the Baker site via Commercentre Drive, Indian Ocean Drive, and a new access road as shown in Figure 2-6.

2.3.5 Sewer Pipeline

Approximately 0.6 mgd of NRW would be generated at the proposed Baker WTP and conveyed to the IRWD sanitary sewer system. A new sewer connection at the southeastern corner of the Baker site would be necessary, as well as a new sewer pipeline. Approximately 2,500 linear feet of new 15-inch sewer pipeline would be installed along the Serrano Creek Trail in the City of Lake Forest to connect to an existing 15-inch sewer pipeline with adequate capacity. The proposed sewer pipeline alignment would be located within an existing 15-foot utility easement owned by IRWD (Figure 2-2). NRW would be conveyed to IRWD's Los Alisos Water Recycling Plant for treatment.

2.3.6 Treated Water Conveyance

Treated water from the Baker WTP would flow by gravity to IRWD customers through its existing distribution system. The Baker WTP product water pump station (described above in Section 2.1.3) would be required to convey treated water to the partner agencies. The preferred method of delivering water to the partner agencies would be through an existing onsite connection to the AMP. The AMP currently bisects the proposed project site within an existing pipeline easement. IRWD is currently coordinating with Metropolitan for use of the AMP. If the AMP alternative is unable to be implemented, then IRWD would construct a new pipeline connecting the Baker WTP to the SCP. IRWD is considering two pipeline alignments to connect to the SCP, shown as Option 1 and Option 2 in Figure 2-2.

2.4 Project Construction

2.4.1 Raw Water Pump Station Construction

Construction of the Raw Water Pump Station would involve demolition and site clearing, excavation for new pipeline connections and structural foundation installation, grading for building pad, pump house construction, pump installation, surge tank installation, and final site restoration. The pump station exteriors would be built in accordance with standard construction methods for roofed masonry buildings. After the pump house is built and the pumps installed, electrical equipment (e.g. machinery control consoles, switchboards, lighting, etc.) would be installed.

The following construction equipment is expected to be present onsite: a dozer, a haul truck, and a front end loader. There would be approximately 20 workers onsite per day. Approximately 500 cubic yards (cy) of demolition debris would be hauled offsite for disposal; approximately 1,000 cy of material would be excavated at the site; and approximately 500 cy of concrete would be imported. Hauling and delivery of material would require approximately 100 truck trips. The construction footprint, including staging areas, would be one acre in size. The duration of construction would be approximately one year, beginning in the summer of 2011 (dates subject to

change). The pump station would be constructed within the SAC-owned parcel but construction easements would be required from the County of Orange and MWDOC.

2.4.2 Baker WTP Construction

Construction of the proposed Baker WTP would include demolition of old facilities, site clearing, excavation, grading, treatment plant construction, paving and site restoration. The operation of existing facilities at the BFP would be discontinued. The following existing facilities would be demolished: Baker Filter Building, 3.4 MG reservoir, maintenance building, and Well #1 Reservoir (Figure 2-1). Existing underground pipelines would remain in place, unless they would interfere with grading or new pipeline installation. The existing perimeter fencing around the site would be reviewed and damaged portions would be replaced to ensure the site is secure. The location of the access gate on the west end of the Baker Site would be relocated approximately 100 feet as shown in Figure 2-6.

The following construction equipment is expected to be present onsite for the duration of construction: a dozer, a front end loader, a scraper, and three haul/dump trucks. There would be approximately 60 workers onsite per day. Approximately 10,000 cy of demolition debris would be hauled offsite for disposal; approximately 12,000 cy of material would be excavated from the site; and approximately 6,500 cy of concrete would be imported. Hauling and delivery of material would require approximately 500 truck trips. A permit would be required from the City of Lake Forest to ensure that the conditions of the streets used for hauling are not inordinately impacted. Construction vehicles would access the site using Commercentre Drive to Biscayne Bay Drive to the existing paved access road. The construction footprint, including staging areas, would be eight acres in size. A 300,000 square foot area of the footprint would be graded. Grading for the proposed project is based on grading down the existing slope behind the filter building for construction of the forebay, feedwater pump station and backwash wastewater treatment facilities (RBF/Carollo, 2010). The duration of construction would be approximately 18 to 24 months beginning in summer 2011.

2.4.3 Pipeline Construction

Construction of the proposed pipelines would occur through trench installation. The sewer pipeline would be installed within an existing 15-foot-wide utility easement that runs along Serrano Creek Trail. An additional 15-foot-wide temporary construction easement adjacent to and north of the utility easement may also be utilized. If necessary to construct to connect the Baker WTP to the SCP, the treated water pipeline would be installed through approximately 1100 feet of undeveloped land. The pipeline replacement at OC-33 would occur within an existing utility easement owned by MWD.

Trenching would utilize a conventional cut and cover construction technique. The trenching technique would include trench excavation, pipe installation, backfill operations, and re-surfacing to the original condition. The trench is typically six feet deep with a maximum depth of 10 to 12 feet. At a depth of 10 feet the maximum width of the trench would be approximately 18 feet. On

average, 50 to 100 feet of pipeline may be installed per day.

Trenches would be temporarily closed at the end of each work day, by covering them with steel trench plates and installing barricades to restrict access to staging areas. The construction equipment needed would include a backhoe, a front end loader, and a haul truck.

For the sewer pipeline, approximately 200 cy of soil would be excavated and hauled offsite. The staging area would be located along Serrano Creek Trail and would be approximately 30 feet by 50 feet. The duration of construction would be approximately six months. During construction, trail detours would be established to enable continued use of the trail by the public to the extent feasible.

For the treated water pipeline, approximately 350 cy of soil would be excavated and hauled offsite. The staging area would be approximately 100 feet wide and 100 feet long. The duration of construction would be approximately six months.

For the OC-33 pipeline replacement, approximately 100 cy of soil would be excavated and temporarily stockpiled onsite. Excavated soil would be used for backfill once the pipeline is installed and remaining soil would be balanced onsite. Equipment staging would be accommodated onsite within previously disturbed areas.

2.5 Project Operation and Maintenance

The Baker WTP would have an operating capacity of up to 43.5 cfs. The WTP would regularly treat imported water conveyed through the Baker Pipeline via the Santiago Lateral. Imported water deliveries would be scheduled with Metropolitan. During outages of the Santiago Lateral or Lower Feeder, the Baker WTP would be able to treat water from Irvine Lake. In addition, the proposed Baker WTP would treat raw water from Irvine Lake intermittently during the year, depending on annual precipitation and Irvine Lake water levels. The WSEL at Irvine Lake typically ranges between 750 and 790 feet (Figure 1-3). As previously described, the proposed project would not significantly change the current operating scheme for Irvine Lake. The WSEL would continue to fluctuate between 750 and 790 feet amsl. Raw water from Irvine Lake would continue to be used to serve existing agricultural customers in addition to intermittent or emergency use at the Baker WTP.

The Baker WTP would require monthly maintenance trips and the Raw Water Pump Station would require semi-annual maintenance trips. The Baker WTP would be staffed daily by a maximum of three onsite workers. The Raw Water Pump Station would not be staffed but remotely monitored via SCADA.

2.5.1 Chemicals and Hazardous Materials

Operation of the proposed Baker WTP would involve onsite chemical use and storage. Chemicals would be stored in the proposed dedicated chemical storage building. An inventory of chemicals

that would be stored and used at the Baker WTP is provided in **Table 2-1** below. Each chemical would be stored in aboveground tanks in a dedicated containment area with secondary containment areas to confine accidental spills and prevent exposure to the environment. The containment areas would be sized to accommodate storage tank volumes and sprinkler system operations to prevent accidental spills. Delivery frequency for each chemical is listed in Table 2-1.

**TABLE 2-1
BAKER WTP CHEMICAL INVENTORY – CHEMICAL STORAGE BUILDING**

Chemical	CAS No.	Storage (gallons)^a	Delivery Frequency (truck trips)
Aqua Ammonia	1336-21-6	10,000	1 every 2 months
Sodium Chlorite	7758-19-2	6,900	1 per month
Chlorine Dioxide	10049-04-4	2,000	None (generated onsite)
Sodium Hydroxide (Caustic Soda)	1310-73-2	13,800	1 per week
Ferric Chloride ^b	7705-08-0	16,000	1 per week
Hydrochloric Acid	7647-01-0	8,000	1 every 2 months
Citric Acid	77-92-9	6,900	1 every 2 months
Sodium Bisulfite	7631-90-5	6,300	1 every 2 months
Sodium Hypochlorite	7681-52-9	16,000	1 every 5 days

a Chemical storage based on 28 mgd treatment capacity and projected average chemical dose.
b Ferric chloride or another similar coagulant would be used.

SOURCE: RBF/Carollo, 2010.

2.5.2 Energy Consumption

Operation of the proposed project would result in an increase in energy consumption, requiring approximately 24.5 million kilowatt hours (kWH) per year to run the Baker WTP (assuming operation for 50 weeks per year) and approximately 1.7 million kWH to run the Raw Water Pump Station (assuming operation for 3 months per year).

2.6 Project Approvals

As Lead Agency, IRWD may use this EIR to approve the proposed project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts. Responsible Agencies having discretionary approval over components of the project include ETWD, MNWD, SMWD, TCWD, MWDOC, and Metropolitan Water District of Southern California.

IRWD and the Responsible Agencies would use the analysis contained within this EIR to support the acquisition of the following regulatory permits or approvals:

- California Department of Fish and Game: Fish and Game Code Section 1602 Streambed Alteration Agreement
- California Department of Health Services: Amended Waterworks Permit
- Regional Water Quality Control Board (RWQCB): Notice Of Intent to comply with General Construction Permit; Storm Water Pollution Prevention Plan (SWPPP); National Pollution Discharge Elimination System (NPDES) Permit for Emergency Overflow; Clean Water Act Section 401 Water Quality Certification
- South Coast Air Quality Management District (SCAQMD): Permit to Construct/Operate
- County of Orange: Construction Easement
- County of Orange: noise ordinance variance for nighttime construction work
- Orange County Fire Authority: Approval of fire safety plans, Fire Master Plan, Hazardous Materials Business Plan
- City of Lake Forest: Transportation and/or haul permits, encroachment permits for construction work in the right of way for the pipelines, noise ordinance variance for nighttime construction work
- City of Orange: Transportation and/or haul permits, noise ordinance variance for nighttime construction work
- Municipal Water District of Orange County: Construction Easement
- Metropolitan Water District of Southern California: ~~Approval for AMP connection~~ Approve AMP interconnection and pipeline use

2.7 References—Project Description

RBF/Carollo, 2010. Baker Water Treatment Plant Project, Preliminary Design Report. Prepared for Irvine Ranch Water District, PR 11218, April 2010.

CHAPTER 3

Environmental Setting, Impacts, and Mitigation Measures

In compliance with Section 15126 of the *CEQA Guidelines*, Chapter 3 provides an analysis of the direct and indirect environmental effects of the proposed project with respect to existing conditions at the time the NOP was published (Appendix A). The following environmental resources are assessed in this chapter in accordance with Appendix G of the *CEQA Guidelines*:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural Resources
- Geology, Soils and Mineral Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use, Planning, and Recreation
- Noise and Vibration
- Public Services and Utilities
- Transportation and Traffic

The cumulative environmental effects associated with the proposed project are discussed separately in **Chapter 4, Cumulative Impacts**.

The proposed project would have no impact on Population and Housing, and therefore an assessment of project impacts on Population and Housing is not included in Chapter 3. The proposed project would not displace substantial numbers of existing houses or people and would not necessitate construction of replacement housing. The potential for the proposed project to induce population growth indirectly is discussed in **Chapter 5, Growth Inducement**.

Each environmental resource section includes the following subsections:

- Environmental Setting
- Regulatory Framework
- Impacts and Mitigation Measures

Significance criteria have been developed for each environmental resource in accordance with Appendix G of the *CEQA Guidelines* and are defined at the beginning of each impact analysis section. Impacts are categorized as follows:

- **Significant and Unavoidable:** mitigation might be recommended but impacts are still significant.
- **Less than Significant with Mitigation:** potentially significant impact but mitigated to a less-than-significant level;
- **Less than Significant:** mitigation is not required under CEQA but may be recommended; or
- **No Impact.**

3.1 Aesthetics

This chapter addresses the potential impacts of the proposed project to aesthetics and visual quality in the project vicinity. It includes a description of the environmental setting to establish baseline conditions for aesthetic resources, a summary of the regulations related to aesthetic resources, and an evaluation of the project's potential effects on scenic vistas, visual character, and light and glare.

3.1.1 Environmental Setting

Regional Setting

The cities of Lake Forest and Orange are located in Orange County, about halfway between Los Angeles and San Diego, on the east side of Interstate 5. Cities surrounding Lake Forest include Mission Viejo to the southeast, Irvine to the northwest, and Laguna Hills to the southwest. The incorporated communities of Aliso Viejo and Rancho Santa Margarita are located near the City to the south and southeast, and the Cleveland National Forest lies directly north of the City. Cities surrounding Orange include Anaheim to the west, Santa Ana to the south, Tustin to the southeast, and unincorporated land to the east.

The City of Lake Forest contains a population of approximately 76,323 and an area encompassing 16.6 square miles (U.S. Census Bureau, 2010; City of Lake Forest, 2006). Located in south Orange County between the coastal floodplain and the Santa Ana Mountains, the City is characterized as being a series of planned communities among natural and created features such as rolling hills, lakes, creeks and eucalyptus groves. The western portion of the City is near sea level, while the northeastern portion reaches elevations of up to 1,500 feet. The Santa Ana Mountains and foothills can be seen from various points within the City, including major roadways, while views of the Saddleback Valley floor and the Pacific Ocean can be seen from higher elevations. The Whiting Ranch Wilderness Park is a prominent visual feature in the northern portion of the City, located generally uphill and above Foothill Ranch and Portola Hills. Aliso Creek, Serrano Creek, and two smaller creeks traverse the city. Significant portions of Aliso Creek and Serrano Creek include trails and open space and have a natural / undeveloped character. The City also has two manmade lakes, which are located within residential developments (City of Lake Forest, 2006). Prominent natural features within the City of Lake Forest include groves of eucalyptus trees, public parks, natural open spaces, created lakes and panoramic mountain views (City of Lake Forest, 2006).

The City of Orange contains a population of approximately 3,026,786 and an area encompassing 37.19 square miles (U.S. Census Bureau, 2010; City of Orange, 2009a). The topography of the City provides ample opportunity for views of the rolling hills, tree-lined suburbs, and water features at various intervals. Portions of Orange are characterized by scenic vistas including undeveloped hillsides, ridgelines, and open space areas that provide a unifying visual backdrop to the urban environment. These viewsheds contribute to the City's identity and an abundance of scenic vistas occur in the largely undeveloped Santiago Hills II and East Orange portions of the planning area including Irvine Lake, grassy valleys, rugged hillsides, and winding canyons (City

of Orange, 2009b). Prominent natural features within the City of Orange include natural open spaces, rivers, riparian areas, rock outcroppings, naturally vegetated hillsides, and public parks.

Major roadway corridors in the project vicinity include Interstate 5, State Route 261, and State Route 241. The three roadways provide both regional connectivity throughout Orange County and interregional connectivity throughout the State.

Project Area

The proposed Baker WTP would be located on the southernmost portion of a 98-acre parcel in the City of Lake Forest at the site of the existing BFP. The northern 82 acres of the parcel is largely vacant land and is planned for the development of a residential property called Serrano Summit (608 units) and a civic center site in accordance with the City of Lake Forest Opportunities Study. Surrounding land uses primarily consist of low density residential, public facility, community park/open space, and light industrial. Existing natural features in the vicinity of the Baker site include Serrano Creek and Serrano Creek Trail. The City of Lake Forest has not designated any scenic roadways or scenic vistas/viewpoints in the area surrounding the Baker WTP. **Figure 3.1-1** shows existing visual character of the Baker site.

The corridor for the potential treated water pipeline would run from the Baker WTP through primarily open space lands adjacent to and visible from residential areas. **Figure 3.1-2** shows existing visual character of the treated water pipeline corridors. In addition, a new sewer pipeline would be constructed along the Serrano Creek trail. The Serrano Creek trail is located adjacent to and visible from residential areas.

The proposed Raw Water Pump Station would be within Peters Canyon Regional Park, a 354-acre County regional park in the City of Orange. The Raw Water Pump Station would be constructed in place of the existing Baker/Irvine Lake Pipeline Intertie. **Figure 3.1-3** shows existing visual character of the Intertie facility. The Intertie facility is surrounded by open space characterized by coastal sage scrub and is accessible from Jamboree Road. In the vicinity of the proposed Raw Water Pump Station, several City of Orange roadways have scenic qualities and are designated as viewscape corridors by the County of Orange. Viewscape corridors are defined as routes that traverse a corridor within which unique or unusual scenic resources and aesthetic values are found. Viewscape corridors include portions of Jamboree Road, Santiago Canyon Road, and Newport Boulevard (City of Orange, 2009). The Intertie facility is screened from view from Jamboree Road by fencing and vegetation. The Intertie facility is distantly visible from Santiago Canyon Road and also screened from view by vegetation. The Intertie facility is not visible from Newport Boulevard.

The OC-33 site is located in the hills north of Irvine Regional Park within MWD's easement, and is already cleared and devoid of vegetation (see Figure 2-4 in the Project Description). The OC-33 site is characterized by partially-buried vaults and some aboveground piping and valves. The OC-33 site is in close proximity to the portion of Jamboree Road that is a designated viewscape corridor by the County of Orange. The OC-33 Meter Exchange component of the proposed project would not introduce any new aboveground structures. Existing visual character is shown in **Figure 3.1-4**.



(a) Existing office, storage building, and partially-buried 3.4 MG reservoir, looking northeast.



(b) Existing storage building and partially-buried 3.4 MG reservoir, looking southeast.



(c) Existing filter building, looking southwest.



(a) Treated water pipeline, option 1 and option 2, looking northwest.



(b) Treated water pipeline, option 1, looking southeast.

SOURCE: ESA, 2010.

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Figure 3.1-2
Existing Visual Character
Treated Water Pipeline Corridors



(a) Existing Baker/Irvine Lake Pipeline Intertie Facility (on left), looking east.



(b) Existing Baker/Irvine Lake Pipeline Intertie Facility, looking northeast.



View looking southeast

SOURCE: RBF, 2010.

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Figure 3.1-4
Existing Visual Character,
OC-33 Site

3.1.2 Regulatory Framework

State

State Scenic Highway Program

The California Department of Transportation (Caltrans) administers the State Scenic Highways Program to preserve and protect scenic highway corridors from projects that would diminish the aesthetic value of lands adjacent to highways (Sections 260 *et seq.* of the California Streets and Highways Code). Scenic highway corridors are defined as the land generally adjacent to and visible by motorists from a scenic highway. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 of the Streets and Highways Code. No highways in the project vicinity are officially designated as a state scenic highway (Caltrans, 2010).

Local

City of Lake Forest

General Plan

The City of Lake Forest General Plan addresses aesthetics and visual resources in the Land Use Element. The following General Plan goals and policies are relevant to the proposed project:

- Goal 2.0** A distinct image and identity for Lake Forest.
- Policy 2.1 Enhance the physical attributes of Lake Forest to create an identifiable and distinct community within Orange County.
- Policy 2.2 Promote high quality in the design of all public and private development projects.
- Goal 3.0** New development that is compatible with the community.
- Policy 3.1 Ensure that new development fits within the existing setting and is compatible with the physical characteristics of available land, surrounding land uses, and public infrastructure availability.
- Policy 3.2 Preserve and enhance the quality of Lake Forest residential neighborhoods by avoiding or abating the intrusion of disruptive, nonconforming buildings and uses.
- Policy 3.4 Blend residential and non-residential development with landscaping and architectural design techniques to achieve visual compatibility.

City of Orange

General Plan

The City of Orange General Plan addresses aesthetics and visual resources in the Natural Resources Element. The following General Plan goals and policies are relevant to the proposed project:

- Goal 7.0** Protect significant view corridors, open space, and ridgelines within the urban environment.
- Policy 7.1 Preserve the scenic nature of significant ridgelines visible throughout the community.
- Policy 7.2 Designate Santiago Canyon Road east of Jamboree Road as a City Scenic Highway to preserve the scenic nature of the open space adjacent to the road.
- Policy 7.5 Encourage the retention and enhancement of scenic corridors and visual focal points within the community.

County of Orange

General Plan

The County of Orange General Plan addresses aesthetics and visual resources in the Resources Element and Transportation Element. No specific goals or policies that pertain to the scenic or visual resources were identified in the County General Plan that would apply to the OC-33 Meter Exchange.

3.1.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to aesthetic resources are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact if it would:

- Create 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; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

The significance determination is based on several evaluation criteria, including the extent of project visibility from sensitive viewing areas such as designated state routes, public open space, or residential areas; the degree to which the various project elements would contrast with or be integrated into the existing landscape; the extent of change in the landscape's composition and character; and the number and sensitivity of viewers.

Impacts Discussion

The following sections discuss the potential effects of the proposed project to aesthetic resources according to the key issue areas identified in Appendix G of the *CEQA Guidelines* and corresponding to the significance criteria identified above.

Scenic Highway Corridors

The City of Lake Forest and the City of Orange do not contain any state-designated scenic highways within their jurisdictional limits, as designated by the California Department of Transportation (Caltrans) under the California Scenic Highway Program (Caltrans, 2010). Accordingly, neither the City of Lake Forest nor the City of Orange have any associated state scenic highway corridors, which are defined as the land generally adjacent to and visible by motorists from a scenic highway. Therefore, construction and operation of the proposed project would have no impact to scenic resources within a state scenic highway corridor.

Scenic Vistas

Impact 3.1-1: Implementation of the proposed project could impact scenic vistas. (Less than Significant with Mitigation)

A scenic vista is defined as an expansive view of a highly valued landscape from a particular public viewpoint. The proposed Baker WTP would result in the construction of new treatment facilities at the Baker site in the City of Lake Forest. The proposed facilities as well as construction equipment would be visible from surrounding streets, including hilltop residential units located east of the Baker site. There are no City-designated scenic vistas in the vicinity of the Baker site (City of Lake Forest, 1994). The proposed Baker WTP would replace existing water treatment facilities within the same general footprint of the existing BFP and would not introduce a new contrasting feature that would affect scenic vistas. The aboveground Baker WTP facilities would be designed to be compatible with existing buildings onsite, such as the office and storage buildings. Implementation of Mitigation Measure AES-1 would ensure that project facilities would continue to be screened from views from neighboring streets and that landscape vegetation is maintained onsite to the extent feasible to screen project facilities from scenic views from hilltop residences. The proposed treated water pipeline and sewer pipeline would be below ground and would not impact a scenic vista.

The proposed Raw Water Pump Station would be located onsite at the existing Intertie facility in the City of Orange. This site is located within Peters Canyon Regional Park. The proposed pump station may be visible from Santiago Canyon Road, which is a City-designated viewscape corridor (City of Orange, 2009a). However, the pump station would be constructed on previously developed land and within the property boundaries of existing water utility facilities. The pump station building would be approximately 20 feet above the ground surface, similar in height to existing facilities currently onsite at the Intertie facility. As a result, the proposed pump station would not substantially alter the viewscape corridor from Santiago Canyon Road. The pump station also would be visible from Jamboree Road. Jamboree Road is a City-designated viewscape corridor north of Santiago Canyon Road. However, the proposed pump station would be located on Jamboree Road south of Santiago Canyon Road. The proposed pump station would not have a substantial adverse effect on scenic vistas. Impacts would be less than significant.

The proposed OC-33 Meter Exchange is located in the open space hills of Irvine Regional Park and could be visible within a scenic vista from public vantage points. The OC-33 site is in close proximity to the portion of Jamboree Road that is designated as a viewscape corridor by the

County of Orange. However, the meter exchange and pipeline replacement would not introduce any new aboveground components at the site and would not disturb any existing vegetation. The OC-33 Meter Exchange would have no permanent impacts to scenic vistas.

Mitigation Measures

AES-1: IRWD shall prepare a landscape plan during project design that includes specifications for perimeter vegetation to screen the Baker WTP from neighboring streets. The landscape plan also shall include specifications to maintain or replace vegetation onsite to the extent feasible.

Significance after Mitigation: Less than significant.

Visual Character

Impact 3.1-2: Implementation of the proposed project could impact the visual character of project sites and surroundings. (Less than Significant with Mitigation)

The Baker site is directly adjacent to residential communities to the south and east. The existing visual character of the Baker site is defined by the existing treatment facilities associated with the BFP. The proposed Baker WTP would replace existing treatment facilities and would be constructed largely within the boundaries of the existing BFP. Installation of water treatment facilities at the Baker site would not alter the visual character of the site. In addition, the aboveground Baker WTP facilities would be similar in height to existing BFP buildings and designed to be compatible with the existing office and storage buildings that would remain onsite.

The proposed treated water pipeline and sewer pipeline would be constructed in open space areas adjacent to residential land uses. Pipeline construction would impact the visual character of the project corridor during construction. However, once constructed the pipelines would be belowground and would not alter the visual character of the sites or their surroundings. Implementation of Mitigation Measure AES-2 would ensure that pipeline construction would not substantially degrade the visual character of the sites by requiring post-construction site restoration. Impacts would be less than significant with mitigation.

The proposed Raw Water Pump Station would be constructed onsite at the existing Intertie facility, which is within Peters Canyon Regional Park and visible from surrounding recreational land uses. Construction of the Pump Station would result in visual impacts for the duration of construction. Once constructed, however, the Pump Station building, surge tank, and wall would be no more than 20 feet above the ground surface, similar in height to existing facilities currently onsite at the Intertie facility. The proposed pump station would be consistent with existing land use at the site. As a result, implementation of the proposed project would not substantially degrade the visual character of the site. Impacts would be less than significant.

The proposed OC-33 Meter Exchange would not introduce any new aboveground components at the site and would not disturb any existing vegetation. Construction activities associated with the

pipeline replacement would have minimal visual impacts for the duration of construction due to the presence of construction equipment onsite. However, the OC-33 Meter Exchange would have no impact to the permanent visual character of the site.

Mitigation Measure

AES-2: IRWD shall restore areas disturbed during construction of the treated water pipeline and sewer pipeline by reestablishing pre-existing conditions including topography, repaving roadways, replanting trees, and/or reseeding or restoring with native plants typical of the immediate surrounding area. IRWD shall be responsible for monitoring the replanted areas for up to three years, or less if the revegetation is determined to be successful and sufficient to avoid excessive erosion.

Significance after Mitigation: Less than significant.

Light and Glare

Impact 3.1-3: Implementation of the proposed project would create a new source of light or glare that could adversely affect day or nighttime views in the area. (Less than Significant with Mitigation)

Construction of the proposed Baker WTP facilities and pipelines would be limited to the hours of 7:00 a.m. to 8:00 p.m. in accordance with the City of Lake Forest Noise Ordinances (11.16.040 Exterior Noise Standards; 11.16.060 Exemptions) (City of Lake Forest, 1994), or as otherwise permitted by the City of Lake Forest. Construction of the proposed Raw Water Pump Station would be limited to the hours of 7:00 a.m. to 8:00 p.m. in accordance with the City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards; 8.24.070 Exemptions) (City of Orange, 2008), or as otherwise permitted by the City of Orange. Construction of the proposed OC-33 Meter Exchange would be limited to the hours of 7:00 a.m. to 8:00 p.m. in accordance with the County of Orange Noise Ordinance (4-6-5 Exterior Noise Standards; 4-6-7 Special Provisions). Implementation of Mitigation Measure NOISE-1 would limit construction to daytime hours and would avoid impacts to nighttime views due to lighting associated with nighttime construction. (See Section 3.10 Noise for Mitigation Measure NOISE-1.)

A few pipeline tie-ins, such as the sewer and AMP pipeline connections, would have to occur at nighttime during periods of low flow in the pipeline system. These activities would be of a short duration (one night). Any impacts to nighttime views due to lighting associated with these tie-ins would be considered less than significant.

Permanent nighttime security lighting would be installed at the proposed Baker WTP and Raw Water Pump Station. Implementation of Mitigation Measure AES-3 would ensure that security lighting would not affect neighboring land uses by requiring all lighting to be directed downward and out of the line of sight of neighboring land uses, and to be turned off automatically at night to the extent feasible. Impacts due to light and glare would be less than significant with mitigation.

Mitigation Measures

Implement **Mitigation Measure NOISE-1**.

AES-3: The exterior nighttime security lighting installed on and around the project facilities shall be of a minimum standard required to ensure safe visibility. Lighting shall be shielded and directed downward, away from the line of sight of neighboring properties, to minimize impacts of light and glare. External security lighting shall be turned off automatically at night to the extent feasible.

Significance after Mitigation: Less than significant.

References – Aesthetics

Caltrans, *California State Scenic Highways, Orange County*, Available online at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm, 2008.

City of Lake Forest, *General Plan*, Available online at: http://www.city-lakeforest.com/depts/ds/planning/plan_docs/default.asp, June 21, 1994.

City of Lake Forest, *City of Lake Forest Opportunities Study Program EIR – Aesthetics and Visual Resources*, 2006.

City of Orange, *General Plan*, January 2009a.

City of Orange, *General Plan Draft Environmental Impact Report*, Available online at: <http://www.edaw.com/orange/library.htm#EXLU>, February 2009b.

United State Census Bureau, *State and County QuickFacts – Lake Forest, CA / Orange, CA*, Available online at: <http://quickfacts.census.gov/qfd/states/06/0639496.html>, June 2010.

3.2 Agricultural and Forestry Resources

This section describes the environmental setting for agricultural and forestry resources, summarizes the applicable regulatory framework, and identifies impacts to agricultural and forestry resources that could occur as a result of implementation of the proposed project.

3.2.1 Environmental Setting

Regional Setting

Historically, Orange County and the City of Lake Forest and the City of Orange were used for agriculture. The total acreages of agricultural land in the cities have declined over time as development has occurred.

The City of Lake Forest is characterized by a series of planned communities among natural and created features such as rolling hills, lakes, creeks and eucalyptus groves. The name is derived from the lakes created as part of housing developments built in the early 1970s and the eucalyptus forests that were cultivated during the 1900s (City of Lake Forest, 1994). Citrus production during the 1920s cultivated and shaped the appearance of the landscape, which was made possible due to drilling technology that obtained greater amounts of irrigation water from local wells. However, due to limited groundwater supplies and limited imported water infrastructure, the area did not substantially grow until the 1970s when imported water supplies were extended into the area (City of Lake Forest, 1994). Citrus groves were eventually replaced with single-family homes, commerce centers and parks that turned the once agricultural-based region into a modern suburban landscape.

The City of Lake Forest includes a large grove of eucalyptus trees in the south central portion of the City. Approximately 400 acres of eucalyptus “forest” were planted in the early 1900s for the purpose of using the wood as a major source of lumber. However, due to the eucalyptus wood being susceptible to cracks that compromised the strength and quality, the economic endeavors were abandoned and leaving the extensive eucalyptus forest preserved and recognized as a focal point for the community.

The City of Orange experienced large amounts of agricultural development during the late 1880s through the 1950s. Citrus and other agricultural industries were the predominant influences for the City and were made possible with the development of local wells and the introduction of reliable irrigation and transportation systems in the early 1880’s. Housing development began to flourish during the 1920s and grew significantly during the post-World War II years. By the 1950s, ranchers sold their acreage and orange groves declined to make way for the City’s suburban residential growth.

A portion of the City of Orange’s sphere of influence includes the Cleveland National Forest. The greatest concentration of open space within the City of Orange’s planning area is within the Cleveland National Forest, which includes several hundred acres in the Peralta Hills area and

several hundred acres in the hills south and east of Orange Park Acres, consisting of Santiago Oaks Regional Park, Irvine Regional Park, and Peters Canyon Regional Park (City of Orange, 2009). OC-33 is located within Irvine Regional Park. Interspersed within the City itself is urban forestland.

Project Area

The project sites are not characterized by existing agricultural production, forests, or timberland. The Baker site is currently developed with water treatment facilities. The proposed treated water pipelines would run through existing open space characterized by coastal sage scrub and landscaped vegetation. The proposed sewer pipeline would run through an existing utility easement along Serrano Creek Trail adjacent to Serrano Creek. The proposed Raw Water Pump Station would be located at the existing Intertie facility within Peters Canyon Regional Park, which is currently developed with water utility facilities. The proposed OC-33 Meter Exchange would be located at the existing OC-33 site, which is located just outside of Irvine Regional Park in unincorporated Orange County.

The City of Lake Forest's zoning designation for the Baker site is General Agriculture (A1). The proposed Baker WTP and a portion of the proposed treated water pipeline would be located at the Baker site. Per Section 9.10.030 of the Lake Forest Zoning Code, public/private utility buildings and structures are permitted in an A1 zone subject to a site development permit. The zoning designations for the remaining project components are not associated with agricultural or forestry resources (see Section 3.9, Land Use, Planning and Recreation).

3.2.2 Regulatory Framework

State

California Farmland Mapping and Monitoring Program

The California Department of Conservation (CDC), under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP). The FMMP monitors the conversion of the state's farmland to and from agricultural use. The map series identifies eight classifications and uses a minimum mapping unit size of 10 acres. The FMMP also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The FMMP maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every two years (CDC, 2007a). Important farmlands are divided into the following five categories based on their suitability for agriculture:

Prime Farmland. Prime Farmland is land with the best combination of physical and chemical characteristics able to sustain long-term production of agricultural crops. This land has produced irrigated crops at some time within the four years prior to the mapping date.

Farmland of Statewide Importance. Farmland of Statewide Importance is land that meets the criteria for Prime Farmland but with minor shortcomings such as greater slopes or lesser soil moisture capacity.

Unique Farmland. Unique Farmland has even lesser quality soils and produces the state's leading agricultural crops. This land is usually irrigated but also includes non-irrigated orchards and vineyards.

Farmland of Local Importance. Farmland of Local Importance is land that is important to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

Grazing Land. Grazing Land is land on which the existing vegetation is suited to the grazing of livestock.

None of the project sites are designated as important farmland under the FMMP.

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, create an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. The vehicle for these agreements is a rolling term 10-year contract.¹ In return, restricted parcels are assessed for tax purposes at a rate consistent with their actual use, rather than potential market value. To cancel a Williamson Act contract, either the local government or the landowner can initiate the nonrenewal process. A "notice of nonrenewal" starts a 9-year nonrenewal period. During the nonrenewal process, the annual tax assessment gradually increases. At the end of the 9-year nonrenewal period, the contract is terminated. Contracts renew automatically every year unless the nonrenewal process is initiated. Williamson Act contracts can be divided into the following categories: Prime Agricultural Land, Non-Prime Agricultural Land, Open Space Easement, Built Up Land, and Agricultural Land in Non-Renewal. None of the project sites are under a Williamson Act contract.

California Public Resources Code section 12220(g)

The California Public Resources Code defines "forest land" under section 12220(g) as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Projects are subject to this code if there are any potentially significant changes to existing areas zoned as forest land. None of the project sites are zoned as forest land.

California Public Resources Code section 4526

The California Public Resources Code defines "timberland" as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce

¹ Information about the basic provisions of Williamson Act contracts can be found on the California Department of Conservation, Division of Land Resource Protection web site: http://www.consrv.ca.gov/DLRP/lca/basic_contract_provisions/index.htm, accessed July 08, 2009.

lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others. Project may have significant impacts to timberland if the project conflicts with existing zoning. None of the project sites are zoned as timberland.

California Government Code section 51104(g)

The California Government Code defines “timberland production zone” under section 51104(g) as an area which has been zoned pursuant to Sections 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h) of the Government Code 51104. Projects may significantly impact timberland resources if the project conflicts with existing areas zoned for timberland production. None of the project sites are zoned for timberland production.

3.2.3 Impacts and Mitigation Measures

Significance Criteria

Based on the *CEQA Guidelines*, a project may be deemed to have a significant effect on the environment with respect to agricultural resources if it would:

- Convert Prime Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.
- Result in the loss of forest land or conversion of forest land to non-forest use.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agriculture use or conversion of forest land to non-forest use.

Impacts Discussion

The following sections discuss the potential effects of the proposed project to agricultural and forestry resources according to the key issue areas identified in Appendix G of the *CEQA Guidelines* and corresponding to the significance criteria identified above.

Prime and Unique Farmland

According to the maps prepared for the FMMP, the sites for the proposed Baker WTP, treated water pipeline, sewer pipeline, Raw Water Pump Station, and OC-33 Meter Exchange do not contain agricultural resources. The project sites are not designated as Prime, Unique or Important

Farmland. Implementation of the proposed project would not convert farmland to non-agricultural use. There would be no impact.

Williamson Act and Agricultural Zoning

According to the City of Lake Forest's Zoning Map, the proposed Baker site is zoned as General Agriculture (A1) (City of Lake Forest, 2008). Per Section 9.10.030 of the Zoning Code, public/private utility buildings and structures are permitted in an A1 zone subject to a site development permit. However, water treatment facilities are not subject to city zoning regulation, per Government Code 53091 and therefore a site development permit would not be required. The proposed project would not conflict with any existing zoning for agricultural use.

None of the proposed project components are located on lands that are subject to a Williamson Act contract. Therefore, the proposed project would not conflict with a Williamson Act contract. There would be no impact.

Forest Land and Timberland

None of the project sites have a zoning designation associated with forest land, timberland, or timberland production. None of the project sites are characterized by forest land. The proposed project would not result in the conversion of forest land to non-forest uses. There would be no impact.

References – Agricultural and Forestry Resources

City of Lake Forest, *General Plan*, Available online at: http://www.city-lakeforest.com/depts/ds/planning/plan_docs/default.asp, June 21, 1994.

City of Lake Forest, *Zoning Code*, 2008.

City of Orange, *Municipal Code*, December 9, 2008.

City of Orange, *General Plan*, January 2009.

3.3 Air Quality and Greenhouse Gas Emissions

This section provides an overview of the existing air quality at the project site and surrounding region, the regulatory framework, an analysis of potential impacts to air quality that would result from implementation of the project, and identification of mitigation measures.

3.3.1 Environmental Setting

Climate and Meteorology

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The project sites are located in the cities of Lake Forest and Orange in Orange County and are within the boundaries of the South Coast Air Basin (SCAB). The Basin, which is a subregion of the South Coast Air Quality Management District's (SCAQMD) jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The topography and climate of southern California combine to make the Basin an area of high air pollution potential. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions which produce ozone. The region experiences more days of sunlight than any other major urban area in the nation (SCAQMD, 1993).

Project Area Setting

Existing Air Quality

The SCAQMD monitors air quality conditions at 38 locations throughout the Basin. Historical data from the Mission Viejo Monitoring Station were used to characterize existing conditions in the vicinity of the proposed project area. Criteria pollutants monitored at the Mission Viejo Monitoring Station include ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), and particulate matter 2.5 microns or less in diameter (PM_{2.5}). **Table 3.3-1** shows pollutant levels, the State standards, and the number of exceedances recorded at the Mission Viejo Monitoring Station from 2006 to 2008.

**TABLE 3.3-1
 AIR QUALITY DATA SUMMARY (2006–2008)**

Pollutant	Standard ^a	Monitoring Data by Year		
		2006	2007	2008
Ozone – Mission Viejo Monitoring Station				
Highest 1 Hour Average (ppm) ^b	0.09	0.108	0.118	0.121
Days over State Standard		5	9	7
Highest 8 Hour Average (ppm) ^b	0.070	0.090	0.104	0.095
Days over National Standard		39	43	42
Particulate Matter (PM₁₀) - Mission Viejo Monitoring Station				
Highest 24 Hour Average (µg/m ³) ^b	50	74	41	55
Est. Days over State Standard ^c		3	0	1
Highest 24 Hour Average (µg/m ³) ^b – National Measurement	150	74	42	55
Est. Days over National Standard ^c		0	0	0
State Annual Average (µg/m ³) ^b	20	NA	NA	23.2
Particulate Matter (PM_{2.5}) - Mission Viejo Monitoring Station				
Highest 24 Hour Average (µg/m ³) ^b	35	46.8	32.6	39.2
Estimated Days over National Standard		NA	0.0	3.5
State Annual Average (µg/m ³) ^b	12	NA	10.4	9.5

^a Generally, state standards and national standards are not to be exceeded more than once per year.

^b ppm = parts per million; µg/m³ = micrograms per cubic meter.

^c PM₁₀ is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.

NOTES: Values in **bold** are in excess of at least one applicable standard. NA = Not Available.

Criteria pollutants CO, NO₂, and SO₂ did not exceed the CAAQS during the 2006 to 2008 period.

SOURCE: CARB, available at <http://www.arb.ca.gov/adam>, accessed August 17, 2010

Criteria Air Pollutants

The following pollutants are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria set forth in the Federal Clean Air Act (FCAA). California has adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard.

Ozone

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and nitrogen oxides (NOx). The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once formed, ozone remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth (“rainout”), or absorption by water molecules in clouds that later fall to earth with rain (“washout”).

Carbon Monoxide (CO)

Carbon monoxide, a colorless and odorless gas, is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, carbon monoxide combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980’s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emissions from new vehicles and improvements in fuels.

Respirable Particulate Matter (PM₁₀ and PM_{2.5})

PM₁₀ and PM_{2.5} consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter). PM₁₀ and PM_{2.5} represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. The California Air Resources Board (CARB) has estimated that achieving the ambient air quality standards for PM₁₀ could reduce premature mortality rates by 6,500 cases per year (CARB, 2002). Particulates can also damage materials and reduce visibility. One common source of PM_{2.5} is diesel particulate emissions.

Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} also is emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. PM_{10} can remain in the atmosphere for up to seven days before gravitational settling, rainout and washout remove it.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2 . Aside from its contribution to ozone formation, nitrogen dioxide can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Odorous Emissions

Though offensive odors from stationary sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

Greenhouse Gases

Gases that trap heat in the atmosphere are called greenhouse gases. The major concern is that increases in greenhouse gases are causing Global Climate Change. Global Climate Change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. Although there is tremendous disagreement as to the speed of global warming and the extent of the impacts attributable to human activities, most agree that there is a direct link between increased emission of so-called greenhouse gases and long term global temperature. What greenhouse gases have in common is that they allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation and warm up the air. The process is similar to the effect greenhouses have in raising the internal temperature, hence the name greenhouse gases.

Both natural processes and human activities emit greenhouse gases. The accumulation of greenhouse gases in the atmosphere regulates the earth's temperature; however, emissions from human activities such as electricity production and motor vehicles have elevated the concentration of greenhouse gases in the atmosphere. This accumulation of greenhouse gases has contributed to an increase in the temperature of the earth's atmosphere and contributed to Global Climate Change. The principal greenhouse gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor (H_2O). Carbon dioxide is the reference gas for climate change because it gets the most attention and is considered the most important greenhouse gas. To account for the warming potential of greenhouse gases, greenhouse gas emissions are often quantified and reported as CO_2 equivalents (CO_2e). Large emission sources are reported in million metric tons of CO_2e . HFCs are used in refrigeration systems as substitutes for CFCs, which were banned for destroying the ozone layer.

Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CARB, 2006). Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

Sensitive Land Uses

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions.

The nearest sensitive receptors to the proposed project sites are residential land uses in close proximity to the Baker site, treated water pipeline alternative corridors and sewer pipeline corridor (see Figure 2-2 in Chapter 2, Project Description). Residents on Palmwood, Wisteria, Oakville, and Marin would be as close as 100 feet from the construction zone of the Baker WTP and as close as 30 feet from the construction zone of the treated water pipeline. Residents on Fallenwood would be as close as 30 feet from the construction zone of the proposed sewer pipeline. Sensitive receptors in Irvine Regional Park would be approximately 500 feet from the OC-33 site.

3.3.2 Regulatory Setting and Air Quality Standards

Federal

The federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS or national standards) to protect public health and welfare. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM10, PM2.5, and lead. **Table 3.3-2** shows current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

Pursuant to the 1990 Federal Clean Air Act Amendments (FCAAA), the USEPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutants, based on whether or not the NAAQS had been achieved.

The FCAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the

**TABLE 3.3-2
 STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES**

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NOx) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	---	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030	0.053 ppm		
Sulfur Dioxide	1 hour	0.25 ppm	---	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	---	0.03 ppm		
Respirable Particulate Matter (PM10)	24 hours	50 g/m ³	150 g/m ³	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 g/m ³	---		
Fine Particulate Matter (PM-2.5)	24 hours	---	35 g/m ³	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.
	Annual Avg.	12 g/m ³	15 g/m ³		
Lead	Monthly Ave. Quarterly	1.5 g/m ³	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
		---	1.5 g/m ³		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Geothermal Power Plants, Petroleum Production and refining	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)
Sulfates	24 hour	25 g/m ³	No National Standard	Produced by the reaction in the air of SO ₂ .	Breathing difficulties, aggravates asthma, reduced visibility
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM2.5.

NOTE: ppm = parts per million; g/m³ = micrograms per cubic meter.

SOURCE: California Air Resources Board, 2008a. *Ambient Air Quality Standards*, available at <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf> Standards last updated November 17, 2008. California Air Resources Board, 2001. *ARB Fact Sheet: Air Pollution Sources, Effects and Control*, <http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm>, page last updated December 2005.

agencies with jurisdiction over them. The USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAA and will achieve air quality goals when implemented. If the USEPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

Regulation of Toxic Air Contaminants (TACs), termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal, State and local controls on individual sources. The 1977 Clean Air Act Amendments required the USEPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. There is uncertainty in the precise degree of hazard.

State

The CARB manages air quality, regulates mobile emissions sources, and oversees the activities of county Air Pollution Control Districts (APCDs) and regional Air Quality Management Districts (AQMDs). CARB establishes state ambient air quality standards and vehicle emissions standards.

California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. These are shown in Table 3.3-2. Under the California Clean Air Act (CCAA) patterned after the FCAA, areas have been designated as attainment or nonattainment with respect to the state standards. **Table 3.3-3** summarizes the attainment status with California standards in the project vicinity.

Toxic Air Contaminants

California State law defines toxic air contaminants (TACs) as air pollutants having carcinogenic effects. The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) hazardous air pollutants (HAPs) adopted in accordance with AB 2728. The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

In August of 1998, CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. CARB subsequently developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB, 2000). The document represents proposals to reduce diesel particulate emissions, with the goal of

**TABLE 3.3-3
 ORANGE COUNTY ATTAINMENT STATUS**

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – one hour	No Federal Standard ^a	Extreme
Ozone – eight hour	Nonattainment	Nonattainment ^b
PM10	Nonattainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
CO	Unclassified/Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Attainment
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

^a Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005

^b The State 8-hour ozone standard was approved by the CARB on April 28, 2005, and became effective May 17, 2006.

SOURCE: California Air Resources Board, 2008b. *Area Designation Maps*, <http://www.arb.ca.gov/desig/adm/adm.htm>, page updated 2009.

reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra low sulfur diesel fuel on diesel-fueled engines.

CARB recently published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB, 2005). The primary goal in developing the handbook was to provide information that will help keep California’s children and other vulnerable populations out of harm’s way with respect to nearby sources of air pollution. The handbook highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities (i.e., distribution centers, rail yards, chrome platers, etc.). However, the health risk is greatly reduced with distance. For that reason, CARB provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

Climate Change and Greenhouse Gases

Assembly Bill 1493 (Pavley)

In 2002, then-Governor Gray Davis signed AB 1493 (Chapter 200, Statutes of 2002, amending Section 42823 of the California Health and Safety Code and adding Section 43018.5 to the code). AB 1493 required CARB to develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State.”

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (“CCR”) in 2004 by adding GHG emissions standards to California’s existing standards for motor vehicle emissions. The regulations would reduce GHG emissions from California passenger vehicles by about 22 percent by 2012 and about 30 percent by 2016.¹ USEPA denied California’s request for the waiver to implement AB 1493 in late December 2007. California filed a suit against USEPA for its decision to deny the CAA waiver. On January 21, 2009, CARB submitted a letter to USEPA Administrator Jackson regarding California’s request to reconsider the waiver denial. USEPA approved the waiver on June 30, 2009.

Executive Order S-3-05

In 2005, in recognition of California’s vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of greenhouse gas would be progressively reduced, as follows:

- By 2010, reduce greenhouse gas emissions to 2000 levels;
- By 2020, reduce greenhouse gas emissions to 1990 levels; and
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the Secretary of the California Environmental Protection Agency (“CalEPA”) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary must submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California’s resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the Secretary of CalEPA created the California Climate Action Team (“CAT”), made up of members from various state agencies and commissions. The CAT released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

Assembly Bill 32 (AB 32)

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), which requires the CARB to design and implement emission limits, regulations, and other measures, such that statewide greenhouse gas emissions will be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emissions cap by 2020.

¹ California Air Resources Board, *Fact Sheet, Climate Change Emission Control Regulations*, http://www.arb.ca.gov/cc/ccms/factsheets/cc_newfs.pdf, 2009, accessed on July 1, 2009.

In December 2007, CARB approved the 2020 emission limit of 427 million metric tons of CO₂e. The 2020 target of 427 million metric tons of CO₂e requires the reduction of 169 million metric tons of CO₂e, or approximately 30 percent, from the state's projected 2020 emissions of 596 million metric tons of CO₂e (business-as-usual).

Also in December 2007, CARB adopted mandatory reporting and verification regulations pursuant to AB 32. The regulations became effective on January 1, 2009, with the first reports covering 2008 emissions. The mandatory reporting regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. Currently, the draft regulation language identifies major facilities as those that generate more than 25,000 metric tons/year of CO₂e. Cement plants, oil refineries, electric-generating facilities/providers, cogeneration facilities, and hydrogen plants and other stationary combustion sources that emit more than 25,000 metric tons/year CO₂e, make up 94 percent of the point source CO₂e emissions in California (CARB, 2007c).

In June, 2008, CARB published its *Climate Change Draft Scoping Plan* (CARB, 2008a). The *Climate Change Draft Scoping Plan* reported that CARB met the first milestones set by AB 32 in 2007: developing a list of early actions to begin sharply reducing greenhouse gas emissions; assembling an inventory of historic emissions; and establishing the 2020 emissions limit. On December 11, 2008 CARB adopted its *Climate Change Scoping Plan*, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (CARB, 2008b). The *Scoping Plan* proposes a comprehensive set of actions designed to reduce overall carbon emissions in California. Key elements of the *Scoping Plan* include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation. (CARB, 2008b)

CARB has not yet determined what amount of GHG emissions reductions it recommends from local government land use decisions; however, the *Scoping Plan* does state that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large

effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The *Scoping Plan* states that the ultimate assignment to local government operations is to be determined (CARB, 2008b).

The *Climate Change Scoping Plan* also includes recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures, shown below in **Table 3.3-4** by sector, also put the state on a path to meet the long-term 2050 goal of reducing California’s GHG emissions to 80 percent below 1990 levels.

The total reduction for the recommended measures is 174 million metric tons/year of CO₂e, slightly exceeding the 169 million metric tons/year of CO₂e of reductions estimated to be needed in the *Draft Scoping Plan*. The measures in the Scoping Plan approved by the Board will be developed over the next two years and be in place by 2012.

**TABLE 3.3-4
 LIST OF RECOMMENDED ACTIONS BY SECTOR**

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO₂e)
Transportation		
T-1	Pavley I and II – Light Duty Vehicle Greenhouse Gas Standards	31.7
T-2	Low Carbon Fuel Standard (Discrete Early Action)	15
T-3 ¹	Regional Transportation-Related Greenhouse Gas Targets	5
T-4	Vehicle Efficiency Measures	4.5
T-5	Ship Electrification at Ports (Discrete Early Action)	0.2
T-6	Goods Movement Efficiency Measures. <ul style="list-style-type: none"> • Ship Electrification at Ports • System-Wide Efficiency Improvements 	3.5
T-7	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	0.93
T-8	Medium- and Heavy-Duty Vehicle Hybridization	0.5
T-9	High Speed Rail	1
Electricity and Natural Gas		
E-1	Energy Efficiency (32,000 GWh of Reduced Demand) <ul style="list-style-type: none"> • Increased Utility Energy Efficiency Programs • More Stringent Building & Appliance Standards Additional Efficiency and Conservation Programs	15.2
E-2	Increase Combined Heat and Power Use by 30,000 GWh (Net reductions include avoided transmission line loss)	6.7
E-3	Renewables Portfolio Standard (33% by 2020)	21.3
E-4	Million Solar Roofs (including California Solar Initiative, New Solar Homes Partnership and solar programs of publicly owned utilities) <ul style="list-style-type: none"> • Target of 3000 MW Total Installation by 2020 	2.1
CR-1	Energy Efficiency (800 Million Therms Reduced Consumptions) <ul style="list-style-type: none"> • Utility Energy Efficiency Programs • Building and Appliance Standards • Additional Efficiency and Conservation Programs 	4.3
CR-2	Solar Water Heating (AB 1470 goal)	0.1

**TABLE 3.3-4
LIST OF RECOMMENDED ACTIONS BY SECTOR**

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO₂e)
Green Buildings		
GB-1	Green Buildings	26
Water		
W-1	Water Use Efficiency	1.4†
W-2	Water Recycling	0.3†
W-3	Water System Energy Efficiency	2.0†
W-4	Reuse Urban Runoff	0.2†
W-5	Increase Renewable Energy Production	0.9†
W-6	Public Goods Charge (Water)	TBD†
Industry		
I-1	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	TBD
I-2	Oil and Gas Extraction GHG Emission Reduction	0.2
I-3	GHG Leak Reduction from Oil and Gas Transmission	0.9
I-4	Refinery Flare Recovery Process Improvements	0.3
I-5	Removal of Methane Exemption from Existing Refinery Regulations	0.01
Recycling and Water Management		
RW-1	Landfill Methane Control (Discrete Early Action)	1
RW-2	Additional Reductions in Landfill Methane <ul style="list-style-type: none"> • Increase the Efficiency of Landfill Methane Capture 	TBD†
RW-3	High Recycling/Zero Water <ul style="list-style-type: none"> • Commercial Recycling • Increase Production and Markets for Compost • Anaerobic Digestion • Extended Producer Responsibility • Environmentally Preferable Purchasing 	9†
Forests		
F-1	Sustainable Forest Target	5
High Global Warming Potential (GWP) Gases		
H-1	Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Services (Discrete Early Action)	0.26
H-2	SF ₆ Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	0.3
H-3	Reduction of Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)	0.15
H-4	Limit High GWP Use in Consumer Products Discrete Early Action (Adopted June 2008)	0.25
H-5	High GWP Reductions from Mobile Sources <ul style="list-style-type: none"> • Low GWP Refrigerants for New Motor Vehicle Air Conditioning Systems • Air Conditioner Refrigerant Leak Test During Vehicle Smog Check • Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers • Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems 	3.3

**TABLE 3.3-4
 LIST OF RECOMMENDED ACTIONS BY SECTOR**

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO₂e)
H-6	High GWP Reductions from Stationary Sources <ul style="list-style-type: none"> • High GWP Stationary Equipment Refrigerant Management Program: <ul style="list-style-type: none"> ○ Refrigerant Tracking/Reporting/Repair Deposit Program ○ Specifications for Commercial and Industrial Refrigeration Systems • Foam Recovery and Destruction Program • SF Leak Reduction and Recycling in Electrical Applications • Alternative Suppressants in Fire Protection Systems • Residential Refrigeration Early Retirement Program 	10.9
H-7	Mitigation Fee on High GWP Gases	5
Agriculture		
A-1	Methane Capture at Large Dairies	1.0†

¹ This is not the SB 375 regional target. CARB will establish regional targets for each MPO region following the input of the regional targets advisory committee and a consultation process with MPO's and other stakeholders per SB 375
 † GHG emission reduction estimates are not included in calculating the total reductions needed to meet the 2020 target

Executive Order S-1-07

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directs CARB to determine whether this Low Carbon Fuel Standard (“LCFS”) has been adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

The LCFS will reduce GHG emissions from the transportation sector in California by about 16 million metric tons in 2020. The LCFS is designed to reduce California’s dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California.

California Air Pollution Control Officers Association

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) issued a “white paper” on evaluating and addressing GHGs under CEQA (CAPCOA, 2008). This resource guide was prepared to support local governments as they develop their programs and policies around climate change issues. The paper is not a guidance document. It is not intended to dictate or direct how any agency chooses to address GHG emissions. Rather, it is intended to provide a common platform of information about key elements of CEQA as they pertain to GHG, including an analysis of different approaches to setting significance thresholds.

The paper notes that for a variety of reasons local agencies may decide not to have a CEQA threshold. Local agencies may also decide to assess projects on a case-by-case basis when the projects come forward. The paper also discusses a range of GHG emission thresholds that could be used. The range of thresholds includes a GHG threshold of zero and several non-zero

thresholds. Non-zero thresholds include percentage reductions for new projects that would allow the state to meet its goals for GHG emissions reductions by 2020 and perhaps 2050. These would be determined by a comparison of new emissions versus business-as-usual emissions and the reductions required would be approximately 30 percent to achieve 2020 goals and 90 percent (effectively immediately) to achieve the more aggressive 2050 goals. These goals could be varied to apply differently to new project, by economic sector, or by region in the state.

Other non-zero thresholds discussed in the paper include:

- 900 metric tons/year CO₂e (a market capture approach);
- 10,000 metric tons/year CO₂e (potential CARB mandatory reporting level with Cap and Trade);
- 25,000 metric tons/year CO₂e (the CARB mandatory reporting level for the statewide emissions inventory);
- 40,000 to 50,000 metric tons/year CO₂e (regulated emissions inventory capture – using percentages equivalent to those used in air districts for criteria air pollutants),
- Projects of statewide importance (9,000 metric tons/year CO₂e for residential, 13,000 metric tons/year CO₂e for office project, and 41,000 metric tons/year CO₂e for retail projects), and
- Unit-based thresholds and efficiency-based thresholds that were not quantified in the report.

OPR 2009 CEQA Guideline Amendments for GHG Emissions/ Senate Bill 97

Senate Bill (SB) 97, signed in August 2007 (Chapter 185, Statutes of 2007; Public Resources Code Sections 21083.05 and 21097), acknowledged that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directed the Governor’s Office of Planning and Research (OPR), which is part of the state Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA, by July 1, 2009. On December 31, 2009, the Natural Resources Agency delivered its rulemaking package to the Office of Administrative Law for their review pursuant to the Administrative Procedure Act. The adopted amendments to the CEQA Guidelines became effective on March 18, 2010.

OPR’s 2008 Technical Advisory

On June 19, 2008, OPR published a technical advisory on CEQA and Climate Change. The advisory provided OPR’s perspective on the emerging role of CEQA in addressing climate change and greenhouse gas emissions, while recognizing that approaches and methodologies for calculating greenhouse gas emissions and addressing environmental impacts through CEQA review are rapidly evolving. The advisory recognized that OPR would develop, and the Resources Agency would adopt, amendments to the *State CEQA Guidelines* pursuant to SB 97 as was done earlier this year. The technical advisory pointed out that neither CEQA nor the *CEQA Guidelines* prescribe quantitative thresholds of significance or particular methodologies for performing an impact analysis. “This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and

applicable” (OPR, 2008). This deference to lead agencies was memorialized in the *CEQA Guidelines* section 15064.4 as discussed below. OPR recommended, at the time, that “the global nature of climate change warrants investigation of a statewide threshold of significance for GHG emissions” (OPR, 2008).

Until such a standard is established, OPR advises that each lead agency should develop its own approach to performing an analysis for projects that generate greenhouse gas emissions (OPR, 2008). Agencies should then assess whether the emissions are “cumulatively considerable” even though a project’s greenhouse gas emissions may be individually limited. OPR states: “Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment” (OPR, 2008). Individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice (OPR, 2008).

If the lead agency determines emissions are a cumulatively considerable contribution to a significant cumulative impact, then the lead agency must investigate and implement ways to mitigate the emissions (OPR, 2008). OPR states: “Mitigation measures will vary with the type of project being contemplated, but may include alternative project designs or locations that conserve energy and water, measures that reduce vehicle miles traveled (VMT) by fossil-fueled vehicles, measures that contribute to established regional or programmatic mitigation strategies, and measures that sequester carbon to offset the emissions from the project” (OPR, 2008). OPR concludes that “A lead agency is not responsible for wholly eliminating all GHG emissions from a project; the CEQA standard is to mitigate to a level that is “less than significant” (OPR, 2008). The technical advisory includes a list of mitigation measures that can be applied on a project-by-project basis.

GHG Amendments to the CEQA Guidelines

On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the *State CEQA Guidelines* for GHG emissions, as required by Public Resources Code section 21083.05 (Senate Bill 97) (OPR, 2009). As noted above, the Natural Resources Agency adopted the *State CEQA Guidelines* Amendments with minor, non-substantial changes on December 31, 2009 and transmitted the Adopted Amendments and the entire rulemaking file to the Office of Administrative Law (OAL). The adopted guidelines became effective on March 18, 2010.

No quantitative significance threshold is included in the Amendments. The *CEQA Guidelines* afford the customary deference provided to lead agencies in their analysis and methodologies. OPR emphasizes the necessity of having a consistent threshold available to analyze projects, and the analyses should be performed based on the best available information. For example, if a lead agency determines that GHGs may be generated by a proposed project, the agency is responsible for assessing GHG emissions by type and source. The *CEQA Guidelines* Amendments provide the following recommendations for determining the significance of GHG emissions under Section 15064.4:

- (a) The determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
 - (1) Use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
 - (2) Rely on a qualitative analysis or performance based standards.
- (b) A lead agency may consider the following when assessing the significance of impacts from GHG emissions on the environment:
 - (1) The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
 - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
 - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The Amendments also include a new Subdivision 15064.7(c) to clarify that in developing thresholds of significance, a lead agency may appropriately review thresholds developed by other public agencies, or recommended by other experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

Finally, the Amendments include a new Section 15183.5 that provides for tiering and streamlining the analysis of GHG emissions. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of GHG emissions in the region over a specified time period.

In addition, the Amendments add a new set of environmental checklist questions (VII. Greenhouse Gas Emissions) to the *State CEQA Guidelines* Appendix G. The new set includes the following two questions:

Would the project:

- a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

CARB Draft GHG Significance Thresholds

On October 24, 2008, CARB released its *Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* for review and public comment (CARB, 2008c). The proposal identifies benchmarks or standards that assist lead agencies in the significance determination for industrial, residential, and commercial projects. Staff intended to make its final recommendations on thresholds in early 2009, consistent with OPR's timeline for issuing draft CEQA guidelines addressing GHG emissions; however, as of June 2010, CARB has yet to issue a final recommendation for GHG significance thresholds.

The proposal currently focuses on two sectors for which local agencies are typically the CEQA lead agency: industrial projects; and residential and commercial projects. Future proposals will focus on transportation projects, large dairies and power plant projects.

For industrial projects, CARB recommends that projects below the industrial screening level (7,000 metric tons/year CO₂e not including traffic emissions) can be found to be less-than-significant. For residential and commercial projects, CARB staff's objective is to develop a threshold on performance standards that will substantially reduce the GHG emissions from new projects and streamline the permitting of carbon-efficient projects. Performance standards will address the five major emission sub-sources for the sector: energy use, transportation, water use, waste, and construction. Projects may alternatively incorporate mitigation equivalent to these performance standards, such as measures from green building rating systems.

Local

South Coast Air Quality Management District

The 1977 Lewis Air Quality Management Act created the SCAQMD to coordinate air quality planning efforts throughout Southern California. This Act merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in Southern California. Under the Act, renamed the Lewis-Presley Air Quality Management Act in 1988, the SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, the SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. The SCAQMD is also responsible for establishing stationary

source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

The SCAQMD monitors air quality within the proposed project area. The SCAQMD has jurisdiction over an area of 10,743 square miles, consisting of Orange County; the non-desert portions of Los Angeles, Riverside, and San Bernardino counties; and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The SCAB is a subregion of the SCAQMD and covers an area of 6,745 square miles. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto mountains to the north and east; and the San Diego County line to the south.

Air Quality Management Plan

All areas designated as nonattainment under the CCAA are required to prepare plans showing how the area would meet the State air quality standards by its attainment dates. The Air Quality Management Plan (AQMP) is the region's plan for improving air quality in the region. It addresses CAA and CCAA requirements and demonstrates attainment with State and federal ambient air quality standards. The AQMP is prepared by SCAQMD and the Southern California Association of Governments (SCAG). The AQMP provides policies and control measures that reduce emissions to attain both State and federal ambient air quality standards by their applicable deadlines. Environmental review of individual projects within the Basin must demonstrate that daily construction and operational emissions thresholds, as established by the SCAQMD, would not be exceeded. The environmental review must also demonstrate that individual projects would not increase the number or severity of existing air quality violations.

The 2007 AQMP was adopted by the SCAQMD on June 1, 2007. The 2007 AQMP proposes attainment demonstration of the federal PM_{2.5} standards through a more focused control of SO_x, directly-emitted PM_{2.5}, and NO_x supplemented with VOC by 2015. The eight-hour ozone control strategy builds upon the PM_{2.5} strategy, augmented with additional NO_x and VOC reductions to meet the standard by 2024. The 2007 AQMP also addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2007 AQMP is consistent with and builds upon the approaches taken in the 2003 AQMP. However, the 2007 AQMP highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the time frames allowed under the CAA.

Air Toxics Control Plan

The SCAQMD has a long and successful history of reducing air toxics and criteria emissions in the Basin. SCAQMD has an extensive control program, including traditional and innovative rules and policies. These policies can be viewed in the SCAQMD's *Air Toxics Control Plan for the Next Ten Years* (March, 2000). To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study (MATES-III), conducted by the SCAQMD. The

monitoring program measured more than 30 air pollutants, including both gases and particulates. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data. MATES-III found that the cancer risk in the region from carcinogenic air pollutants ranges from about 870 in a million to 1,400 in a million, with an average regional risk of about 1,200 in a million.

Greenhouse Gasses

On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is the lead agency and which involve stationary sources. The adopted interim threshold consists of five tiers of standards that could result in a finding of less than significant impact. The tiers include CEQA exemptions, consistency with regional GHG budgets, less than significant screening levels for industrial projects (10,000 metric tons/year CO₂e) and commercial/residential projects (3,000 metric tons/year CO₂e), performance standards (i.e., 30 percent less than Business As Usual [BAU]), and carbon offsets (SCAQMD, 2008).

3.3.3 Impacts and Mitigation Measures

Significance Criteria

CEQA Guidelines

According to *CEQA Guidelines* Appendix G, the project would have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any nonattainment pollutant (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; or
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Construction

The proposed project would result in a significant construction air quality impact if emissions from the proposed project exceed the significance thresholds set forth in **Table 3.3-5**.

**TABLE 3.3-5
SCAQMD SIGNIFICANCE THRESHOLDS**

Pollutant	Regional Construction Emissions	Localized Construction Emissions	Operational Emissions
NO _x	100 lbs/day	250 lbs/day	55 lbs/day
VOC (ROG)	75 lbs/day	---	55 lbs/day
PM ₁₀	150 lbs/day	84 lbs/day	150 lbs/day
PM _{2.5}	55 lbs/day	26 lbs/day	55 lbs/day
CO	550 lbs/day	3,871 lbs/day	550 lbs/day

SOURCE: SCAQMD, 1993. *CEQA Air Quality Handbook*. April 1993.

Operations

The proposed project would result in a significant operational air quality impact if either of the following occur:

- Emissions exceed the significance thresholds set forth in Table 3.3-5.
- The proposed project would not be compatible with SCAQMD air quality goals and policies.
- The proposed project would generate significant emissions of Toxic Air Contaminants (TACs);

Greenhouse Gases

At this time few if any local governments statewide have adopted anything beyond a case-by-case significance criterion for evaluating a project's contribution to climate change. The OPR has asked the CARB to "recommend a method for setting thresholds of significance to encourage consistency and uniformity in the CEQA analysis of GHG emissions" throughout the state because OPR has recognized that "the global nature of climate change warrants investigation of a statewide threshold for GHG emissions" (OPR, 2008). CARB began the public process of addressing significance thresholds in October 2008, but many decisions need to be made to have final criteria (CARB, 2008c).

The informal guidelines in OPR's technical advisory and CARB's proposed thresholds provide a general basis for determining a proposed project's contribution of greenhouse gas emissions and the project's contribution to global climate change. In the absence of adopted statewide thresholds, OPR recommends the following approach for analyzing greenhouse gas emissions:

- 1) Identify and quantify the project's greenhouse gas emissions;
- 2) Assess the significance of the impact on climate change; and
- 3) If the impact is found to be significant, identify alternatives and/ or mitigation measures that would reduce the impact to less than significant levels.

OPR's technical advisory states that "the most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide." State law defines GHG to also include

hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These latter GHG compounds are usually emitted in industrial processes, and therefore not applicable to the proposed project; however, the GHG calculation should include emissions from CO₂, N₂O, and CH₄, as recommended by OPR. The informal guidelines also advise that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water usage and construction activities.

As discussed above, at this time there are no statewide guidelines for greenhouse gas emission impacts, but this will be addressed through the provisions of SB 97. OPR has until July 1, 2009 to draft the new greenhouse gas guidelines, and the State Resources Agency will thereafter have until January 1, 2010 to certify and adopt the regulations. In the interim local agencies must analyze the impact of GHGs. For this analysis, the project would be considered to have a significant impact if the project would be in conflict with the AB 32 State goals for reducing greenhouse gas emissions. We assume that AB 32 will be successful in reducing GHG emissions and reducing the cumulative GHG emissions statewide by 2020. It is important that the state has taken these measures, because no project individually could have a major impact (either positively or negatively) on the global concentration of GHG. The project will be reviewed to make sure it does not conflict with the goals of AB 32.

Methodology

Construction Impacts

Daily construction emissions were forecast by using default values from the air quality emissions model URBEMIS 2007 version 9.2.4. URBEMIS 2007 output sheets are provided in **Appendix B** of this document.

Operational Impacts

Operational emissions were determined by estimating greenhouse gasses through indirect electricity usage provided by the applicant and formulas and emission factors from The California Climate Action Registry Report Protocol 2006.

Impacts Discussion

Consistency with Air Quality Management Plans

The proposed project would not conflict with the applicable Air Quality Management Plan (AQMP). The project site is located within the SCAB. The SCAQMD regulates air emissions in the SCAB. The SCAQMD is required to reduce emissions of criteria pollutants for which the SCAB is in non-attainment. Strategies to achieve these emissions reductions are developed in the AQMP, prepared by SCAQMD for the region. SCAG has established the assumptions for growth, in terms of demographic growth and associated air quality impacts, and these assumptions are utilized in SCAQMD's 2007 AQMP. The 2007 AQMP is designed to meet both State and federal CAA planning requirements for all areas under SCAQMD jurisdiction. The 2007 AQMP focuses

on reduction strategies for ozone and particulate matter and sets forth procedures for measurements, control strategies, and air quality modeling (SCAQMD, 2003).

The proposed project does not include residential development or large local or regional employment centers and thus, would not result in significant population or employment growth. The project is intended to provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity and distribution infrastructure for potable water. Consequently, implementation of the proposed project would be consistent with AQMP attainment forecasts. Therefore, no impact would occur.

Violation of an Air Quality Standard

Impact 3.3-1: The proposed project could violate an air quality standard or contribute substantially to an existing or projected air quality violation during its construction and operation. (Less than Significant)

Construction

Construction emissions were estimated using the URBEMIS2007 model developed by CARB (See Appendix B). It is mandatory for all construction projects in the SCAB to comply with SCAQMD Rule 403 for controlling fugitive dust. Incorporating Rule 403 into the proposed project would reduce regional respirable particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}) emissions from construction activities. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the proposed project site, and maintaining effective cover over exposed areas. Compliance with Rule 403 ensures that the proposed project would comply with SCAQMD thresholds. Site watering and application of soil binders would reduce the particulate matter from becoming airborne, while washing of transport vehicle tires and undercarriages would reduce re-entrainment of construction dust onto the local roadway network.

Maximum daily construction-related regional emissions for the proposed project are presented in **Table 3.3-6**. As shown, construction emissions would not exceed the SCAQMD daily significance thresholds for reactive organic gases (ROG), NO_x, CO, PM_{2.5} and PM₁₀. Carbon dioxide (CO₂) thresholds have not yet been developed. Since construction emissions would not exceed the SCAQMD thresholds, the regional construction impact would be less than significant.

Operation

Operational emissions for the proposed project would be generated primarily from on-road vehicular traffic. Minimal employee trips would be required daily for routine operations, inspection and maintenance, and these minimal trips would result in a less-than-significant increase in emissions to the local air quality environment.

**TABLE 3.3-6
 EMISSIONS FROM PROJECT CONSTRUCTION (POUNDS PER DAY)**

Phase	Estimated Emissions (lbs/day)					
	ROG	NO _x	CO	PM10	PM2.5	CO ₂
2011 Construction						
2011 Baker WTP/Raw Water Pump Station	5	45	22	12	4	4,839
2011 Pipelines	5	40	22	30	8	4,225
2011 Total	10	85	44	42	12	9,064
SCAQMD Thresholds	75	100	550	150	55	NA
Significant Impact (Yes or No)	No	No	No	No	No	NA
2012 Construction						
2012 Baker WTP/Raw Water Pump Station	20	42	21	15	4	4,839
2012 Pipelines	5	37	21	30	8	4,225
2012 Total	25	79	42	45	12	9,064
SCAQMD Thresholds	75	100	550	150	55	NA
Significant Impact (Yes or No)	No	No	No	No	No	NA

NOTE: Project construction emissions estimates for off-road equipment were made using URBEMIS2007, version 9.2.4. See Appendix B for more information.

SOURCE: ESA, 2010.

The new treatment facilities will require diesel-fueled emergency generators. Each generator would be required to obtain an emissions permit from SCAQMD, along with any other combustion equipment that is part of the proposed project. Emergency generators are estimated to run 20-50 hours per year. Emissions from a generator running a worst case 24 hours a day were estimated using URBEMIS 2007 (Table 3.3-7). As shown in Table 3.3-7, operational emissions from the emergency generator would not exceed SCAQMD thresholds.

**TABLE 3.3-7
 EMISSIONS FROM PROJECT OPERATION (POUNDS PER DAY)^a**

Project Component	ROG	NO _x	CO	PM10	PM2.5	CO ₂
Emergency Generator	6	76	22	2	2	9,040
SCAQMD Thresholds of Significance	75	100	550	150	55	NA^b
Significant (Yes or No)?	No	No	No	No	No	No

a Project operational emergency generator emissions estimates were made using URBEMIS2007, version 9.2. 4 using a default 549 horsepower generator.

b SCAQMD has an annual project threshold of 10,000 tons of CO₂ equivalent (CO₂e), there is no daily threshold.

Values in **bold** are in excess of the applicable SCAQMD significance threshold. NA = Not Available.

SOURCE: ESA, 2011.

Operational emissions would include an increase of approximately 26,700 mega-watt hours per year. Energy would be provided to the site by SCE. No off-site improvements will be necessary to provide the energy to operate the plant at full capacity. The facility will be connected to the existing grid infrastructure connected to the site. Since the project would provide water treatment in place of the existing Diemer Treatment Plant, the emissions associated with off-site energy production would not be additive to the existing condition, but would replace emissions generated by the current demand. Therefore, the proposed project would not increase air emissions that could violate any air quality standard or contribute substantially to an existing air quality violation. Impacts would be less than significant, and no mitigation is required.

Mitigation Measures

None required.

Cumulative Air Emissions

Impact 3.3-2: The proposed project could result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard. (Less than Significant)

The construction and operational impacts of the proposed project would not exceed the SCAQMD's thresholds and therefore would not be expected to be cumulatively considerable. With respect to nearby, related past, present and/or foreseeable future projects (either overlapping construction periods or on-going operation), it is possible that emission increases for certain air pollutants could exceed the SCAQMD's emission thresholds. However, per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other related projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. Development of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant. Impacts would be considered less than significant, and no mitigation is required.

Mitigation Measures

None required.

Effects on Sensitive Receptors

Impact 3.3-3: The proposed project could expose sensitive receptors to substantial pollutant concentrations. (Less than Significant)

Some land uses are considered more sensitive to air pollutants, such as carbon monoxide and toxic air contaminants, than others. Residences, hotels, schools, rest homes, and hospitals are generally more sensitive to air emissions than commercial and industrial land uses. Residential neighborhoods border the Baker site to the south and east. The nearest sensitive receptors to project components are residents on Palmwood, Wisteria, Oakville, and Marin located as close as 100 feet from the construction zone of the Baker WTP and as close as 30 feet from the construction zone of the treated water pipeline, and residents on Fallenwood located as close as 30 feet from the proposed sewer pipeline corridor. However, pipeline construction would be constructed at a rate of approximately 50 to 100 feet per day, limiting exposure to individual residents. Residents at this distance would not be exposed to substantial pollutant concentrations from project construction as described below.

Carbon Monoxide

The highest amount of CO produced by construction would be 44 lbs/day, which is 8 percent of the SCAQMD threshold of 550 lbs/day; therefore local construction CO concentrations are considered to be less-than-significant. Proposed project vehicle trips would also affect CO concentrations along the roadway network. However, minimal employee trips would be required daily for routine operations, inspection and maintenance. Consequently, the proposed project's operational contribution to local CO concentrations is considered to be less than significant, and no mitigation is required.

Toxic Air Contaminants

According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air emissions (TAC) over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the construction schedule of 17 months, and estimated localized PM_{2.5} (DPM emissions from diesel engine exhaust is for the most part entirely composed of PM_{2.5}) emissions of 12 pounds per day (see Table 2), the proposed project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. There would be no residual emissions after construction and no corresponding individual cancer risk as a result of project operation. No mitigation is required.

Mitigation Measures

~~None required.~~ Although not required, to minimize potential effects to sensitive receptors during construction, Mitigation Measures AQ-1 through AQ-4 would implement best management practices to further decrease construction emissions.

AQ-1: General contractors shall implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.

AQ-2: All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

AQ-3: General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off when not in use to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

AQ-4: All construction vehicles shall be prohibited from idling in excess of ten minutes, both on- and off-site.

Odor Impacts

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project would not include the type of land uses typically associated with odor emissions. The site is currently a water filtration plant; the proposed project would result in replacement water treatment facilities that would not increase odor emissions in the project vicinity nor affect the nearest residential dwellings. Chemicals used during the treatment process would be stored in tanks and housed in the proposed chemical storage building. As described in Chapter 2, Project Description, the chemical building would have an HVAC system that would prevent potential release of chemical odors from the building. There would be no impact.

Mitigation Measures

None required.

Greenhouse Gas Emissions

Impact 3.3-4: The proposed project could conflict with implementation of state goals for reducing greenhouse gas emissions and thereby have a negative effect on Global Climate Change. (Less than Significant)

The accumulation of GHGs has been implicated as a driving force for Global Climate Change. Definitions of climate change vary between and across regulatory authorities and the scientific community, but in general can be described as the changing of the earth's climate caused by natural fluctuations and the impact of human activities that alter the composition of the global atmosphere. Both natural processes and human activities emit GHGs. Global Climate Change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. Although there is disagreement as to the speed of global warming

and the extent of the impacts attributable to human activities, the vast majority of the scientific community now agrees that there is a direct link between increased emission of GHGs and long term global temperature. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative greenhouse gas emission impacts from a climate change perspective (CAPCOA, 2008).

On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is the lead agency. The interim threshold consists of five tiers of standards that could result in a finding of less than significant impact. The tiers include CEQA exemptions, consistency with regional GHG budgets, less than significant screening levels for industrial projects (10,000 metric tons/year CO₂e) and commercial/residential projects (3,000 metric tons/year CO₂e), performance standards (i.e., 30 percent less than Business As Usual [BAU]), and carbon offsets. The industrial screening level of 10,000 metric tons/year CO₂e was used as the quantitative threshold for the proposed project GHG emissions (SCAQMD, 2008).

For the proposed project, the worst-case annual emissions associated with construction are 16 metric tons per year CO₂e after amortization over 30 years per SCAQMD methodology. Operational emissions would include an increase of approximately 26,700 mega-watt hours per year. CO₂e emissions associated with this increased energy use would be approximately 7,887 metric tons per year CO₂e. Appendix B includes these emissions calculations. Combined with amortized construction-related GHG emissions as recommended by SCAQMD, project operation would generate approximately 7,903 metric tons CO₂e per year. The proposed project would not exceed the SCAQMD draft screening significance threshold for industrial sources (10,000 metric tons/year CO₂e). The GHG emissions associated with the proposed project would be considered to have a less-than-significant impact on the environment, based on the SCAQMD GHG significance threshold. Accordingly, the GHG emissions associated with the proposed project also would not hinder the State's ability to meet its AB 32 goals to reduce GHG emissions. Thus, the proposed project would not conflict with any applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions. Impacts would be considered less than significant.

In addition, the proposed Baker WTP would provide redundant treatment capacity to MWD's Diemer Filtration Plant. Water treated at the Baker WTP would be in place of, rather than in addition to, water treated at the Diemer Filtration Plant. As such, to some extent, GHG emissions associated with operation of the proposed project would be in place of, rather than addition to, GHG emissions currently associated with operation of the Diemer Filtration Plant, to provide the same treated water to IRWD and the partner agencies. If the proposed project is not implemented, the Diemer Filtration Plant would continue to provide treated imported water to meet current and future demand. Currently, there are GHG emissions associated with energy use at the Diemer Filtration Plant. GHG emissions associated with operation the proposed Baker WTP potentially

would be offset by a reduction in GHG emissions from operation of the Diemer Filtration Plant, with respect to the treated water provided by MWD to IRWD and the partner agencies. As a result, GHG emissions associated with operation of the proposed project would have a less-than-significant impact on the environment and Global Climate Change.

Mitigation Measures

None required.

References – Air Quality and Greenhouse Gas Emissions

Association of Environmental Professionals (AEP), *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*, 2007.

California Air Pollution Control Officers Association (CAPCOA), *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, 2008.

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South Coast Air Quality Management District (SCAQMD), *CEQA Air Quality Handbook*, June 1993.

South Coast Air Quality Management District (SCAQMD), *Final Localized Significance Threshold Methodology*, June 2003.

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3.4 Biological Resources

This section describes the environmental setting for biological resources, the applicable regulatory framework, potential impacts of the proposed project, and mitigation measures to reduce those impacts to a level of less than significant.

3.4.1 Environmental Setting

Methodology

On March 17, 2009 and June 29, 2010, ESA biologists conducted a biological resource assessment to evaluate existing and potential biological resources that could be impacted from construction and operation of the proposed project (i.e., pump station, filtration plant, proposed pipeline alignments, and emergency overflow). The assessment included an inventory of rare plants within and adjacent to the project's area of disturbance; characterization of onsite and adjacent plant communities and determination of their suitability to support special-status plants or animals; identification of jurisdictional resources (e.g., "waters of the U.S." and state protected waters), protected trees, or vegetation that could potentially be impacted; and, the presence of any wildlife movement corridors.

In addition to conducting the field assessment, ESA reviewed existing information to identify target species and habitats that have been previously recorded in the vicinity of the project site. The database search included the California Natural Diversity Database (CNDDDB) (CDFG, 2010), the California Native Plant Society Electronic Inventory (CNPS, 2010), and the U.S. Fish and Wildlife Service endangered species list (USFWS, 2010). ESA queried these sources for special-status species records in the Lake Forest U.S. Geological Survey 7.5-minute quadrangle and the eight surrounding quadrangles (Orange, Tustin, Black Star Canyon, Corona South, Santiago Peak, Canada Gobernadora, San Juan Capistrano, and Laguna Beach). The potential for special-status species to occur on the project site was evaluated based on the proximity of the project to previously recorded occurrences in the CNDDDB, on-site vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, and geographic ranges of special-status plant and wildlife species known to occur in the region. Appended to this EIR is a Biological Resources Assessment (ESA, 2010) that details the methods and results of the biological resource assessment summarized above (See **Appendix C**).

Regional Setting

The proposed project is located in the Saddleback Valley region of Orange County, California. The climate in this region can be characterized as Mediterranean, with an average high and low temperature of 75.4° F and 49.4° F, respectively. Annual precipitation averages 12.86", with 10.74" accumulating from November to March. Elevation in the project area ranges from approximately 630 feet at the Treated Water Connection Point Option 1 to approximately 475 feet at Serrano Creek.

The project area lies within the Newport Bay Watershed and Santa Ana River Watershed. The Newport Bay Watershed drains approximately 152.02 square miles of southern Orange County to the Pacific Ocean. Serrano Creek and other drainages in the project area are part of the San Diego Creek/Peters Canyon Wash subwatershed, which is the largest subwatershed in the Newport Bay watershed and collectively drains into the northeastern end of Upper Newport Bay. Santiago Creek and other drainages in the project area are part of the Santa Ana River Watershed, which covers 2,800 square miles and discharges to the Pacific Ocean in Newport Beach, north of Newport Bay.

Local Setting

Baker WTP

The majority of the existing Baker Filtration Plant (BFP) consists of water treatment structures, pavement, and ornamental landscaping. The Baker site is accessed through a residential neighborhood to the west and is surrounded by urban development with the exception of Serrano Creek, which borders the site to the west. The area north of the Baker site is largely vacant land and is located within Non-Reserve Lands in the Central Subarea of the Orange County Natural Communities Conservation Program (NCCP).

Treated Water Pipeline Alternatives

The proposed pipeline alignments run through the existing Baker site, as well as adjacent urban developments consisting of paved roads, ornamental landscaping, and varying amounts of disturbed native and non-native vegetation.

OC-33 Meter Exchange

The pipeline replacement would occur outside of the OC-33 meter vault. The existing pipeline would be replaced with approximately 30 linear feet of steel pipeline. The area to be affected during installation of the pipeline is entirely disturbed and devoid of vegetation.

Raw Water Pump Station

The site for the proposed Raw Water Pump Station is bordered by Jamboree Road to the east, Peters Canyon Reservoir to the west, willow riparian woodland to the north, and coastal sage scrub vegetation to the south. The existing Intertie facility is fenced in, mostly paved or barren ground that is devoid of vegetation.

Sewer Pipeline and Emergency Overflow Facility

The proposed sewer pipeline would be constructed within an easement along the existing Serrano Creek Trail that extends along the northern boundary of Serrano Creek. This portion of the Serrano Creek Trail is bordered to the north by residential neighborhoods and is an actively used pedestrian trail. The proposed emergency overflow facility would discharge into Serrano Creek. The portion of Serrano Creek where the emergency outflow is proposed is undisturbed and consists mostly of riparian woodland.

Plant Communities and Habitat Types

Plant communities are assemblages of plant species that occur together in the same area. They are defined by species composition and relative abundance. ESA mapped vegetation communities within and surrounding the project area for the Baker site (**Figure 3.4-1**) according to the California Department of Fish and Game's *List of California Terrestrial Natural Communities* (CDFG 2003). Common plant names are taken from J.C. Hickman (1993). Provided below is a brief description of the existing plant communities and habitats found within the primary components of the proposed project.

Baker WTP

Proposed disturbance areas within the Baker site would occur primarily within already disturbed areas that consist of ruderal vegetation and ornamental landscaped areas. Several native plant species occur within the plant site including numerous coast live oak (*Quercus agrifolia*) trees and approximately 4.2 acres of moderately disturbed coastal sage scrub (CSS). Dominant plants observed within this CSS community include: buckwheat (*Eriogonum fasciculatum*), coast goldenbush (*Encelia californica*), black sage (*Salvia melifera*), mulefat (*Baccharis salicifolia*), elderberry (*Sambucus mexicana*) black mustard (*Brassica nigra*), brome grasses (*Bromus sp.*), and wild oat (*Avena fatua*).

Treated Water Pipeline Alternatives

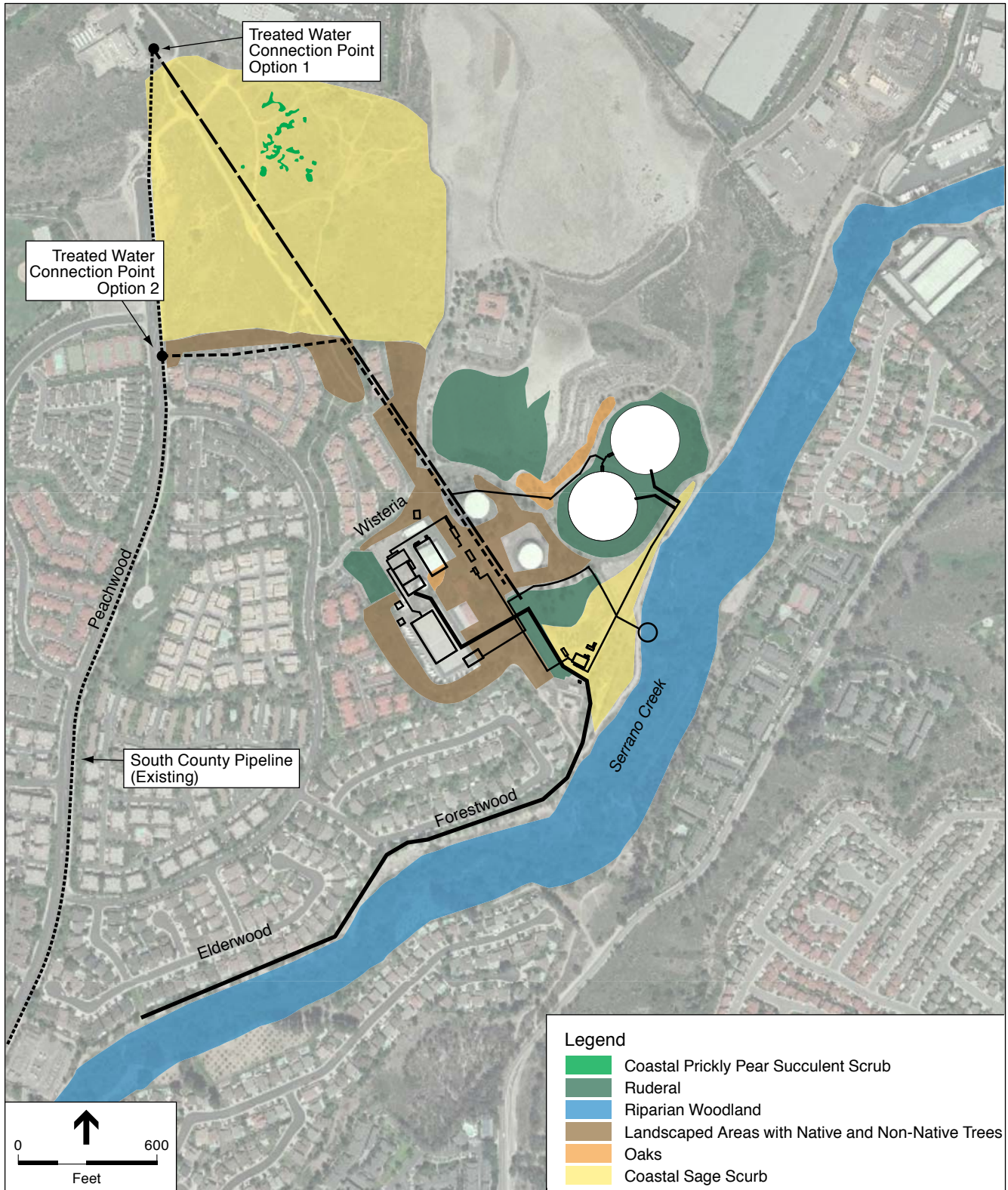
Two alternatives were evaluated for construction of a treated water pipeline between the Baker WTP and SCP. This pipeline would be constructed only if a direct connection to the AMP is not feasible. As shown on Figure 3.4-1, the pipeline alternatives initially follow the same path, northwest from the Baker facility through ornamental landscaping that borders an adjacent residential complex. At approximately halfway along the route, Option 2 turns to the west continuing through the landscaping while Option 1 continues northwest and crosses approximately 1400 feet of disturbed CSS. Dominant plant species observed in the CSS area include buckwheat, black sage, coast goldenbush, and elderberry. In addition, there is an area within the CSS (as depicted on Figure 3.4-1) that contains a small area of coastal prickly pear (*Opuntia littoralis*) succulent scrub, which is also somewhat disturbed from existing trails and recreational use.

OC-33 Meter Exchange

The proposed 10 foot section of OC-33 pipeline to be retrofitted is located in a previously disturbed area devoid of vegetation and ground disturbance from work activities will be limited to this segment of pipeline to be upsized.

Raw Water Pump Station

Proposed construction within the Raw Water Pump Station would be contained within a fenced, previously graded and/or paved area that consists of existing IRWD facilities. The surrounding area consists of native habitat with varying degrees of disturbance. These habitats include CSS (immediately adjacent) and a willow riparian area down slope near the Peters Canyon Reservoir (approximately 300 feet to the west). Dominant plant species observed around the existing fenced



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker Regional Water Treatment Plant . 208671

Figure 3.4-1
Plant Communities and Habitats

facility include mulefat, coyote bush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), buckwheat, black sage, coast goldenbush, and elderberry. Within the existing facility there are several mature Brazilian pepper and eucalyptus trees, as well as ornamental landscaping and some CSS plants (i.e., mostly California buckwheat).

Sewer Pipeline

Construction of the proposed sewer pipeline would occur through trench installation within an existing 15-foot-wide utility easement that runs along Serrano Creek Trail. An additional 15-foot-wide temporary construction easement adjacent to and north of the utility easement may also be utilized. If this feature is necessary to construct, the sewer pipeline would extend approximately 1100 feet into disturbed CSS located to the east of the Baker site (Figure 3.4-1). The Serrano Creek Trail consists of a compacted dirt pedestrian path that is bordered to the north with landscaped, manufactured slope with mature sycamore (*Platanus racemosa*) and ornamental ground cover. The south side of the trail is comprised of a mix of native and non-native ruderal vegetation, including black mustard (*Brassica nigra*), tree tobacco (*Nicotiana glauca*), shortpod mustard (*Hirschfeldia incana*), Russian thistle (*Salsola kali*), storksbill filaree (*Erodium sp.*), fennel (*foeniculum vulgare*), bull thistle (*Cirsium vulgare*), telegraph weed (*Heterotheca grandiflora*), sea fig (*Carpobrotus chilensis*), mule fat, calabazilla (*Cucurbita foetidissima*), toyon (*Heteromeles arbutifolia*), coyote bush, buckwheat, Peruvian pepper (*Schinus molle*), common reed (*Phragmites australis*), Canary Island palm (*Phoenix canariensis*), prickly pear (*Opuntia sp.*), and horehound (*Marrubium vulgare*). Stands of elderberry and two immature coast live oak trees are also located outside of the easement along the south side of the trail.

Emergency Overflow Facility

The portion of Serrano Creek where a proposed emergency overflow may occur is an approximately one half mile reach of the creek south of the existing BFP. This portion of Serrano Creek is characterized as Southern Sycamore Alder Riparian Woodland (Holland, 1986); a California Department of Fish and Game (CDFG) Sensitive Plant Community. This community has a dominant overstory of arroyo willow (*Salix lasiolepis*), sycamore (*Platanus racemosa*), and blue elderberry (*Sambucus Mexicana*). Other overstory species include red willow (*Salix laevigata*), poplar (*poplar sp.*), coast live oak, and eucalyptus. Common understory species include, mulefat, toyon, common reed, and coyote bush. At the emergency overflow site in Serrano Creek, prickly pear and coastal sage scrub also have been observed (**Figure 3.4-2**) (RBF, 2010).

General Wildlife

Common wildlife expected to be in the project area, mainly within Serrano Creek, include species that are adapted to urban environments such as opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), common rodents, western fence lizard (*Sceloporus occidentalis*), side blotched lizard (*Uta stansburiana*), and various passerine species typical of the area (e.g., finches, sparrows, crow, and raptors). Wildlife species observed within and in the vicinity of Serrano Creek included the following avian



SOURCE: RBF Consulting; Eagle Aerial Imaging, 2010.

IRWD Baker WTP Draft EIR . 208671
Figure 3.4-2
 Emergency Overflow Facility
 Jurisdictional Map

species: American goldfinch (*Carduelis tristis*), house finch (*Carpodacus mexicanus*), common raven (*Corvus corax*), and spotted towhee (*Pipilo maculatus*). Although no raptors or nests were observed during a reconnaissance-level assessment, some of the larger eucalyptus and coast live oak trees within the riparian area could provide raptor nesting habitat. Few wildlife species would be anticipated within the proposed work areas.

Wildlife Movement Corridors

Wildlife movement corridors provide a connection between two or more habitat areas that are often larger or superior in quality to the linkage. Such linkages can be quite small or constricted, but can be vital to the long-term health of connected habitats. Linkage values are often addressed in terms of “gene flow” between populations, with movement taking potentially many generations. The U.S. Court of Appeals, Ninth Circuit, has defined wildlife corridors as “...avenues along which wide-ranging animals can travel, plants can propagate, genetic interchange can occur, populations can move in response to environmental changes and natural disasters, and threatened species can be replenished from other areas.”

Wildlife movement is highly restricted at the Baker site due to the existing urban development that surrounds the project area, which includes residential neighborhoods, commercial and industrial development, freeways, and highly traveled roads. Nonetheless, some animals adapted to urban conditions are expected to traverse through Serrano Creek from the north, which may include coyote, skunk, opossum, and raccoon. However, passage through Serrano Creek to the south is terminated at the Bake Parkway urban development. Based on aerial photographs and review of the USGS Quadrangle for Lake Forest, Serrano Creek runs underground at Bake Parkway and does not resurface downstream. To the north, Serrano Creek bisects urban development and traverses underneath Highway 241, extending further north to Whiting Ranch and Santiago Canyon which makes up the headwaters of the creek. In summary, animals are not expected to traverse through the proposed project site and the project site is not considered a wildlife migration corridor.

Sensitive Natural Communities

The area of Serrano Creek where an emergency overflow area is to be located is characterized as Southern Sycamore Alder Riparian Woodland; a CDFG-listed sensitive terrestrial community. No other sensitive natural communities occur within the project area.

Habitat Conservation Plans

Orange County Natural Community Conservation Plan/Habitat Conservation Plan

The Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), of which IRWD is a signatory, sets forth a proposed Conservation Strategy that would be implemented by the County of Orange in cooperation with state and federal agencies and Participating Landowners in Orange County. The proposed Conservation Strategy focuses on

long-term protection and management of multiple natural communities that provide habitat essential to the survival of a broad array of wildlife and plant species.

The Baker WTP, treated water pipelines, and sewer pipelines would be constructed in areas designated as Non-Reserve Lands in the NCCP/HCP. Construction of the proposed Baker WTP and pipelines would not be in conflict with the NCCP/HCP.

Although the proposed Raw Water Pump Station would be located within Reserve Lands of the NCCP/HCP, demolition of existing structures and construction of new facilities would occur entirely within the (disturbed) boundaries of the existing site. The site does not support any habitat capable of supporting any candidate, sensitive or special-status species; therefore construction at the Raw Water Pump Station would not be in conflict with the Orange County NCCP/HCP.

Special-Status Species

Special-status species are those plants and animals that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies as under threat from human-associated developments. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as “sensitive” on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. These species are referred to collectively as "special-status species" in this report, following a convention that has developed in practice but has no official sanction.

Special-status species include:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the federal Endangered Species Act or the California Endangered Species Act;
- Species that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA) (*CEQA Guidelines* Section 15380);
- Plants listed as rare under the California Native Plant Protection Act (CDFG Code 1900 *et seq.*);
- Plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered (List 1B and 2 plants) in California (Skinner and Palvik, 2004);
- Plants listed by the CNPS as plants in which more information is needed to determine their status and plants of limited distribution (List 3 and 4 plants) (Skinner and Palvik, 2004);
- Wildlife species of special concern to CDFG; and/or
- Wildlife fully protected in California (CDFG Code Sections 3511, 4700, and 5050).

A CNDDDB search (CDFG, 2010) revealed the recorded occurrences of 13 special status plant species within a five mile radius of the project area. These species are listed below in **Table 3.4-1**. Three of the rare plant species found to have nearby records of occurrence are listed as endangered

**TABLE 3.4-1
SPECIAL-STATUS PLANTS AND ANIMALS WITH POTENTIAL TO OCCUR
IN THE VICINITY OF THE PROJECT SITE**

Species	Listing Status	Habitat Requirements	Potential for Occurrence
Plants			
<i>Baccharis malibuensis</i> Malibu baccharis	1B.1	Coastal scrub, chaparral, cismontane woodland. Conejo volcanic substrates often on exposed road cuts.	None, no habitat present.
<i>Brodiaea filifolia</i> thread-leaved brodiaea	FT, SE, 1B.1	Cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools. Usually associated with grassland and vernal pools.	None, no habitat present.
<i>Callitropsis forbesii</i> Tecate cypress	1B.1	Closed-cone coniferous forest, chaparral. Primarily on north facing slopes, groves often associated with chaparral 250-1500m	None, no habitat present.
<i>Calochortus plummarae</i> Plummer's mariposa-lily	1B.2	Coastal scrub, chaparral, valley and foothill grassland. Rocky and sandy sites, of granitic or alluvial material, often common after fire. 90-1600m	Low
<i>Calochortus weedii var intermedius</i> intermediate mariposa-lily	1B.2	Coastal scrub, chaparral, valley and foothill grassland. Dry, rocky slopes and rocky outcrops 120-850m	Low
<i>Centromadia parryi ssp. australis</i> southern tarplant	1B.1	Marshes and swamps (margins), valley and foothill grasslands. Often in disturbed sites near the coast at marsh edges, also in alkaline soils.	None, no habitat present.
<i>Chorizanthe parryi var. fernandina</i> San Fernando Valley spineflower	FC/SE/1B.1	Coastal scrub. Sandy soils, 40-1035m.	None, no habitat present.
<i>Chorizanthe polygonoides var. longispina</i> long-spined spineflower	1B.2	Chaparral, coastal scrub, meadows, valley and foothill grassland. Gabbroic clay. 30-1450m	None, no habitat present.
<i>Dudleya multicaulis</i> many-stemmed dudleya	1B.2	Chaparral, coastal scrub, valley and foothill grassland. Heavy, often clayey soils or grassy slopes. 0-790m	None, no habitat present.
<i>Eriastrum densifolium ssp. sanctorum</i> Santa Ana River woollystar	FE/SE/1B.1	Coastal scrub, chaparral, sandy soils on river floodplains or terraced fluvial deposits. 150-610m	None, no habitat present.
<i>Nama stenocarpum</i> mud nama	2.2	Marshes and swamps, Lake shores, river banks, inermittently wet areas 5-500m	None, no habitat present.
<i>Nolina cismontana</i> peninsular nolina	1B.2	Chaparral, coastal scrub. Primarily on sandstone and shale, also on gabbro soils. 140-1275m	None, no habitat present.
<i>Pentachaeta aurea ssp. allenii</i> Allen's pentachaeta	1B.1	Valley and foothill grassland, coastal scrub. Openings in grassland or scrub.	Low
Invertebrates			
<i>Branchinecta sandiegonensis</i> San Diego fairy shrimp	FE	Vernal pools, endemic to Orange and San Diego Cos.	None, no habitat present.

**TABLE 3.4-1
 SPECIAL-STATUS PLANTS AND ANIMALS WITH POTENTIAL TO OCCUR
 IN THE VICINITY OF THE PROJECT SITE**

Species	Listing Status	Habitat Requirements	Potential for Occurrence
<i>Streptocephalus woottoni</i> Riverside fairy shrimp	FE	Vernal pools, endemic to western Riverside, Orange and San Diego Cos.	None, no habitat present.
Fish			
<i>Catostomus santaanae</i> Santa Ana sucker	FT/SC	Endemic to Los Angeles basin, south coastal streams. Habitat generalist but prefer sand-rubble-boulders, cool clear water and algae.	None, no habitat present.
<i>Gila orcuttii</i> arroyo chub	SC	Los Angeles basin south coastal streams. Slow water stream sections with mud or sand bottoms, feeds on aquatic vegetation and associated invertebrates.	None, no habitat present.
<i>Rhinichthys osculus ssp.3</i> Santa Ana speckled dace	SC	Headwaters of the Santa Ana and San Gabriel Rivers. Requires permanent flowing streams with summer temps of 17-20 deg. C. Usually inhabits shallow cobble and gravel riffle.	None, no habitat present.
Amphibians			
<i>Ambystoma californiense</i> California tiger salamander	FPT/SC	Ponds and slow-moving streams, adjacent to grassland with fossorial mammals.	None, no habitat present.
<i>Bufo californicus</i> arroyo toad	FE, SC	Semi-arid regions near washes or intermittent streams, including valley -foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores, loose gravelly areas of streams in drier parts of range.	None. No suitable habitat is present within the portion of Serrano Creek that is adjacent or down stream of the project site.
<i>Rana draytonii</i> California red-legged frog	FT, SC	Lowlands and foothills in or near permanent sources of deep water with dense shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development, access to estivation habitat.	None. No suitable habitat is present within the portion of Serrano Creek that is adjacent or down stream of the project site.
<i>Spea hammondi</i> western spadefoot	SC	Primarily in grassland habitats, can be found in valley-foothill hardwood woodlands. Vernal pools essential for breeding/egg-laying	None, no habitat present.
<i>Taricha torosa torosa</i> Coast Range newt	SC	Coastal drainages from Mendocino Co. to San Diego Co. Terrestrial habitats, will migrate over 1km to breed in ponds, reservoirs and slow moving streams	Low

**TABLE 3.4-1
 SPECIAL-STATUS PLANTS AND ANIMALS WITH POTENTIAL TO OCCUR
 IN THE VICINITY OF THE PROJECT SITE**

Species	Listing Status	Habitat Requirements	Potential for Occurrence
Reptiles			
<i>Actinemys marmorata pallida</i> southwestern pond turtle	SC	Permanent or nearly permanent bodies of water in many habitat types below 1820m. Requires basking sites.	None, no habitat present.
<i>Anniella pulchra pulchra</i> silvery legless lizard	SC	Sandy or loose loamy soils under sparse vegetation, prefer soils of high moisture content	Low
<i>Aspidoscelis hyperythra</i> orange-throated whiptail	SC	Low elevation coastal scrub, Chaparral and valley-foothill hardwood habitats. Prefers washes and other sandy areas. Perennial plants necessary for major food - termites.	Low
<i>Crotalus ruber ruber</i> northern red-diamond rattlesnake	SC	Chaparral, woodland, grassland and desert areas Riverside, Orange, San Diego Co to eastern slopes of mountains. Rocky areas and dense vegetation, needs rodent burrows, cracks in rocks or surface cover objects.	Low
<i>Lampropeltis zonata (pulchra)</i> California mtn. kingsnake (San Diego pop.)	SC	Restricted to San Gabriel, San Jacinto mts., Valley-foothill hardwood forest, coniferous forest, chaparral, riparian and wet meadows.	None, no habitat present.
<i>Phrynosoma coronatum (blainvillii population)</i> coast (San Diego) horned lizard	SC	Coastal scrub, chaparral. Prefers friable, rocky or shallow sandy soils	Low
<i>Salvadora hexalepis virgulata</i> coast patch-nosed snake	SC	Coastal scrub, chaparral. Requires small mammal burrows for refuge and overwintering.	Low
<i>Thamnophis hammondi</i> two-striped garter snake	SC	Coastal from Salinas Co. to Baja California. Aquatic, found in or near permanent fresh water, streams with rocky beds and riparian vegetation. To 7000ft.	Low
Birds			
<i>Ammodramus savannarum</i> grasshopper sparrow	SC	Dense grasslands on rolling hills, lowland plains, valleys and hillsides. Favors naïve grasslands, loosely colonial when nesting	Low
<i>Asio otus</i> long-eared owl	SC	Oak, willow, cottonwood riparian areas. Requires open land with abundant rodents, nests in abandoned crow, magpie or hawk nests.	Moderate

**TABLE 3.4-1
 SPECIAL-STATUS PLANTS AND ANIMALS WITH POTENTIAL TO OCCUR
 IN THE VICINITY OF THE PROJECT SITE**

Species	Listing Status	Habitat Requirements	Potential for Occurrence
<i>Athene cunicularia</i> burrowing owl	SC	Open dry annual or perennial grasslands, deserts and scrublands with low-growing vegetation. Subterranean nests, dependent on burrowing mammals, notably California ground squirrel.	Low
<i>Campylorhynchus brunneicapillus</i> <i>sandiegensis</i> coastal cactus wren	SC	Coastal sage scrub and coastal prickly pear succulent scrub. Requires tall <i>Opuntia</i> cactus for nesting/roosting	Moderate
<i>Icteria virens</i> yellow-breasted chat	SC	Summer resident, Willow riparian. Nests in low dense riparian habitat.	Low
<i>Polioptila californica californica</i> coastal California gnatcatcher	FT, SC	Obligate permanent resident of coastal sage scrub below 2500ft. Arid washes, mesas and slopes.	Low.
<i>Vireo bellii pusilus</i> least Bell's vireo	FE, SE	Summer resident in So. California, willow riparian, mulefat, mesquite. Nests along margins of bushes.	Low
Mammals			
<i>Antrozous pallidus</i> pallid bat	SC	Deserts, grasslands, shrublands, woodlands and forests. Open dry habitats with rocky areas for roosting. Roost sites must protect bats from high temperature. Sensitive to disturbance of roost sites.	Low
<i>Choeronycteris mexicana</i> Mexican long-tongued bat	SC	Occasional specimens found in San Diego and farther north. Feeds on nectar of night blooming succulents. Roosts in relatively well lit caves and in and around buildings.	Low
<i>Eumops perotis californicus</i> western mastiff bat	SC	Open, semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, chaparral. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Low
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	SC	Coastal scrub of southern California, San Diego to San Luis Obispo Cos. Moderate to dense canopies preferred, abundant in areas with rock outcrops and rocky cliffs and slopes.	Low
<i>Nyctinomops femorosaccus</i> pocketed free-tailed bat	SC	Pine-juniper woodlands, desert scrub, palm oasis, desert wash	Low
<i>Nyctinomops macrotis</i> big free-tailed bat	SC	Low lying arid areas, need high cliffs or rocky outcrops for roosting sites.	Low

**TABLE 3.4-1
 SPECIAL-STATUS PLANTS AND ANIMALS WITH POTENTIAL TO OCCUR
 IN THE VICINITY OF THE PROJECT SITE**

Species	Listing Status	Habitat Requirements	Potential for Occurrence
Status Codes:			
<u>Federal (USFWS)</u>			
FE = Federally endangered			
FT = Federally threatened			
FSC = Federal species of concern			
<u>State (CDFG)</u>			
SE = State endangered			
ST = State threatened			
SC = State species of special concern			
<u>CNPS</u>			
1B = plants rare, threatened, or endangered in the states and elsewhere			
1B.1 = seriously threatened in California			
1B.2 = rare, threatened, or endangered in California and elsewhere; fairly threatened in California			
2 = plants rare, threatened, or endangered in the state, but common elsewhere			
2.2 = rare, threatened, or endangered in California, not elsewhere; fairly threatened in California			
2.3 = rare, threatened, or endangered in California, not elsewhere; not very threatened in California			

or threatened by either the State of California or the federal government; thread-leaved brodiaea, (*Brodiaea filifolia*), San Fernando Valley spineflower (*Chorizanthe parryi var. fernandina*), and Santa Ana River woollystar (*Eriastrum densifolium ssp. Sanctorum*). Suitable habitat for these listed species is not found on or adjacent to the project sites; therefore, these listed species do not occur near the proposed project’s proposed impact areas. Table 3.4-1 includes ten (10) other non-listed species that have been previously recorded in the area; however, because of a lack of suitable habitat, none of these plants have a high probability of occurrence within the project’s proposed impact areas.

The CNDDDB search (CDFG, 2010) revealed the recorded occurrences of 26 special-status wildlife species in the area that may have the potential to occur on the project sites. These species have nearby records documented in the CNDDDB; however, habitat for any of these species is very limited at the Baker site, or on the adjacent pipeline alignments. At the Raw Water Pump Station, habitat for special status species is not found within the fenced area planned for construction, although there is suitable habitat adjacent to the site, particularly around the perimeter of the reservoir.

3.4.2 Regulatory Framework

Federal

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act (FESA) that provides a process for listing species as either threatened or endangered, and methods of protecting listed species. Species are listed as either endangered or threatened under Section 4 of the FESA that defines as “endangered” any plant or animal species that is in danger of extinction throughout all or a significant portion of its range and “threatened” if a species is likely to become endangered in the foreseeable future. Section 9 of the FESA prohibits “take” of listed threatened or endangered species. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Harm under the definition of “take” includes disturbance or loss of habitats used by a threatened or endangered species during any portion of its life history. Under the regulations of the FESA, the USFWS may authorize “take” when it is incidental to, but not the purpose of, an otherwise lawful act.

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or “take” any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. “Take” is defined as possession or destruction of migratory birds, their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the Migratory Bird Treaty Act.

Clean Water Act Section 404

Wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the U.S. Army Corps of Engineers (Corps) which generally define wetlands through consideration of three criteria: hydrology, soils, and vegetation. Under Section 404 of the Clean Water Act (CWA), the Corps is responsible for regulating the discharge of dredged or fill material into waters of the United States. The term “waters” includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations.

State

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFG is responsible for maintaining a list of threatened and endangered species (California Fish and Game Code 2070), candidate

species, and species of special concern. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state listed endangered or threatened species may be present on the project region and determine whether the proposed project would have a potentially significant impact on such species. In addition, the CDFG encourages informal consultation on any proposed project that may impact a candidate species. If there were project-related impacts to species on the CESA threatened and endangered list, they would be considered “significant.” Impacts to “species of concern” would be considered “significant” under certain circumstances, discussed below.

Although threatened and endangered species are protected by specific federal and state statutes, *CEQA Guidelines* Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the *CEQA Guidelines* primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not yet been listed by either the USFWS or CDFG. Thus, CEQA provides an agency with the ability to protect a species from a project’s potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

California Department of Fish and Game Code

Fully-Protected Species

The California Fish and Game Code provides protection from “take” for a variety of species that possess “fully-protected species” status. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research or relocation.

Bird and Nest Protection

Section 3503 of the California Fish and Game Code prohibits the killing of birds or the destruction of bird nests. Birds of prey are protected in California under the State Fish and Game Code, Section 3503.5 (1992). Section 3503.5 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.” Project impacts to these species would not be considered “significant” in this EIR unless they are known or have a high potential to nest on the site or rely on it for primary foraging.

Wetland Regulations

U.S. Army Corps of Engineers

Wetlands and other waters, e.g., rivers, streams and natural ponds, are a subset of “waters of the U.S.” and receive protection under Section 404 of the Clean Water Act (CWA). The U.S. Army

Corps of Engineers (USACE) has primary federal responsibility for administering regulations that concern waters and wetlands on the project site under statutory authority of the CWA (Section 404). In addition, the regulations and policies of various federal agencies (e.g., U.S. Department of Agriculture and Natural Resource Conservation Service [NRCS], and the U.S. Environmental Protection Agency) mandate that the filling of wetlands be avoided to the extent feasible. The USACE requires obtaining a permit if a project proposes placing structures within navigable waters and/or alteration of waters of the United States.

The term “waters of the United States” as defined in the Code of Federal Regulations (33 CFR 328.3[a] and [b]; 40 CFR 230.3[s]) includes those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. In extant regulations, these may be taken to be sloughs, wet meadows, or natural ponds; however, the Supreme Court of the United States recently ruled (January 8, 2001: *Solid Waste Agency of Northwestern Cook County (SWANCC) v. United State Army Corps of Engineers et al.*) that certain isolated wetlands do not fall under the jurisdiction of the CWA.

Based on the Supreme Court ruling (SWANCC), non-navigable, isolated, intrastate waters are no longer defined as waters of the United States. Jurisdiction of non-navigable, isolated, intrastate waters may be possible if their use, degradation, or destruction could affect other waters of the United States, or interstate or foreign commerce. Jurisdiction over such other waters is analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on a case-by-case basis.

A more recent Supreme Court case, *Rapanos v. United States* (2006), also questioned the definition of “waters of the United States” and the scope of federal regulatory jurisdiction over such waters, but left open the question as to whether the CWA extends to those waters and wetlands that have a “significant nexus” to navigable waters of the United States, or whether it is limited to waters with a continuous connection. The implications of this ruling are still being tested in the courts. For example, the California Ninth Circuit Court of Appeals decision, in *Northern California River Watch v. City of Healdsburg* (August 10, 2006), relied on the “significant nexus” definition, an interpretation that suggests little change in the scope of the CWA. To date, neither the USEPA nor the USACE have issued guidelines as to how to implement the CWA in light of these latest rulings. In practice, USACE jurisdictional authority remains as it was prior to *Rapanos*, although the potential exists for changes in the future based on Court decisions and pending regulatory guidance.

California Department of Fish and Game

Under Sections 1600 – 1616 of the California Fish and Game Code, the CDFG regulates activities that would substantially divert, obstruct the natural flow, or substantially change the hydrological dynamic of rivers, streams and lakes. The jurisdictional limits of CDFG are defined in Section 1602 of the California Fish and Game Code as, “bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake....” The CDFG requires a

Lake or Streambed Alteration Agreement for activities within its jurisdictional area. Impacts to the jurisdictional area of the CDFG would be considered “significant” in this EIR.

Local

Orange County Natural Community Conservation Plan

The Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), of which IRWD is a signatory, sets forth a proposed Conservation Strategy that would be implemented by the County of Orange in cooperation with state and federal agencies and Participating Landowners in Orange County. The proposed Conservation Strategy focuses on long-term protection and management of multiple natural communities that provide habitat essential to the survival of a broad array of wildlife and plant species.

City of Lake Forest Eucalyptus Tree Cutting Permit

As per Lake Forest City Code, Chapter 6.20: *Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees*, a Eucalyptus Tree Cutting Permit must be obtained prior to cutting, pruning or removing any eucalyptus trees during the restricted period between April 1 and October 31. The City’s eucalyptus trees currently are threatened by the activity of the Eucalyptus Longhorn Borer Beetle, which causes serious damage and destruction to eucalyptus trees during the beetle’s active period. The city has established a “restrictive period” for which no eucalyptus trees can be cut, pruned or removed without a city-approved permit

City of Lake Forest General Plan - Recreation and Resource Element

According to the Recreation and Resource Element of the City’s General Plan, development proposals will be reviewed for potential biological resource impacts according to CEQA and applicable state and federal wildlife regulation. Where significant impacts are identified, the City will require modifications to the project to avoid the impact, or require mitigation measures to reduce the impact. The focus of the impact assessment includes the following resources:

- Riparian and wetland habitat;
- Coastal sage scrub habitat;
- Rare and endangered plant and animal species;
- Wildlife movement corridors;
- Habitat fragmentation; and
- Significant tree stands.

3.4.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to aesthetic resources are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact if it 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 CDFG or USFWS;
- 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 CDFG or USFWS;
- 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.

Impacts Discussion

The following sections discuss the potential effects of the proposed project to biological resources according to the key issue areas identified in Appendix G of the *CEQA Guidelines* and corresponding to the significance criteria identified above.

Wildlife Movement Corridors

Wildlife movement is highly restricted at the Baker site due to the existing urban development that surrounds the project area, which includes residential neighborhoods, commercial and industrial development, freeways, and highly traveled roads. Nonetheless, some animals adapted to urban conditions are expected to traverse through Serrano Creek from the north, which may include coyote, skunk, opossum, and raccoon. However, passage through Serrano Creek to the south is terminated at Bake Parkway urban development. Based on aerial photographs and review of the USGS Quadrangle for Lake Forest, Serrano Creek runs underground at Bake Parkway and does not resurface downstream. To the north, Serrano Creek bisects urban development and traverses underneath Highway 241, extending further north to Whiting Ranch and Santiago Canyon which makes up the headwaters of the creek. In summary, animals are not

expected to traverse through the proposed project site and the project site is not considered a wildlife migration corridor. There would be no impact.

HCP/NCCP

The proposed project would be constructed in areas designated as Non-Reserve Lands in the NCCP/HCP. Serrano Creek and the riparian woodland it supports is also within Non-Reserve Land. Although the proposed Raw Water Pump Station would be located within Reserve Lands of the NCCP/HCP, construction of new facilities at the existing Intertie would occur entirely within the boundaries of the existing site, which are entirely disturbed and no disturbance would occur outside of previously disturbed areas. Moreover, the site does not support any habitat capable of supporting any candidate, sensitive or special-status species; therefore construction of the Raw Water Pump Station would not be in conflict with the Orange County NCCP/HCP. Construction and operation of the entire proposed project would not be in conflict with the NCCP/HCP; therefore, no impacts would occur.

Special Status Species

Impact 3.4-1: Implementation of the proposed project could 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 CDFG or USFWS. (Less than Significant with Mitigation)

The proposed project would be constructed primarily within the boundaries of previously developed sites (i.e. Baker site, Raw Water Pump Station site, and OC-33 site) where no habitats are present to support potentially occurring special-status species. As depicted in Figure 3.4-1, Option 1 for the proposed treated water pipeline would extend for approximately 1,400 feet through disturbed coastal sage scrub (CSS), a plant community common to southern California that is known to support several special-status species. Option 2 for the proposed treated water pipeline would extend through landscaped areas adjacent to residential development and CSS habitat (see Figure 3.4-1); no special-status species or other sensitive biological resources would occur within these landscaped areas. The CSS habitat adjacent to the proposed pipeline alignments are relatively disturbed by several dirt paths actively used for off-road bicycles and hikers (several bikers and hikers were observed within these coastal sage scrub habitats during the biological assessment conducted by ESA). In addition, the CSS habitat is located immediately adjacent to a high density residential development. Nearby occurrence records (CNDDDB, 2010) for special-status species known to occur within the CSS plant community include coastal California gnatcatcher (*Polioptila californica californica*), a federally-listed threatened species, and the following CDFG Species of Special Concern: coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), orange throated whiptail (*Aspidoscelis hyperythrya*), coast patch-nosed snake (*Salvadora hexalepis*), and coast (San Diego) horned lizard (*Phrynosoma coronatum coronatum*).

Approximately 0.7 acres of CSS and 0.33 acres of coastal prickly pear succulent scrub would be directly impacted if pipeline Option 1 is implemented. Due to the disturbed condition of the CSS

and its proximity to highly urbanized areas (i.e., roads and adjacent residential neighborhoods), coastal California gnatcatchers and the coastal cactus wren are not expected to occur. However, the special-status terrestrial species listed above have a low potential to be present.

Implementation of Mitigation Measure BIO-1 and BIO-2 would ensure impacts to special-status terrestrial species are reduced to less than significant levels. Pipeline Option 2 would not directly impact CSS habitat and no special-status species would occur within the landscaped areas located along the Option 2 alignment.

Serrano Creek, although once considered an ephemeral stream channel, has been described as having a small amount of base flow most of the time due to its proximity to development (SCCWRP 2005). This base flow was observed by ESA during a 2009 site assessment and was assumed to be from runoff from nearby residential developments. The creek does not support perennial natural flows. Due to the absence of perennial natural flows, the portion of the creek located near the project site is not considered a habitat that could potentially support aquatic special-status reptile species such as southwestern pond turtle and two-striped garter snake, and special status fish species. The Southern Sycamore Alder Riparian Woodland in Serrano Creek could, however, support potential foraging habitat for least Bell's Vireo (*Vireo bellii pusilus*), although breeding activity is not expected to occur in this area. In addition, there's moderate potential that long-eared owl (*Asio otus*) could forage and nest within the creek. Implementation of Mitigation Measure BIO-3 and BIO-4 would ensure that any impacts to least Bell's vireo and long-eared owl as a result of construction activities in the vicinity of the riparian habitat would be reduced to levels that are less than significant.

One raptor nest was observed within a blue gum (*Eucalyptus globulus*) tree located at the western boundary of the existing Baker site. Some of the larger eucalyptus trees within and in the vicinity of Serrano Creek could also serve as raptor nest sites; although, none were observed during the sites visits conducted by ESA in 2009 and 2010. Although not observed, several song birds are expected to nest within the trees and shrubs located throughout the Baker site, as well as in the vegetation within and adjacent to the proposed treated water pipeline alignments, Raw Water Pump Station, OC-33 site, and Serrano Creek. Mitigation measures to reduce impacts to breeding and nesting birds to a level of less than significant are provided below in Mitigation Measures BIO-3 and BIO-4.

Mitigation Measures

BIO-1: If Option 1 of the treated water pipeline is implemented, to avoid potential impacts to terrestrial special-status species, the following measure shall apply:

- IRWD shall retain a qualified biologist with a CDFG Scientific Collection Permit and Memorandum of Understanding to conduct preconstruction surveys for the California Species of Special Concern that have the potential to occur within the project impact area. These wildlife species include orange throated whiptail, coast (San Diego) horned lizard, and coast patch-nose snake. All special-status wildlife species observed within the project site during preconstruction surveys shall be relocated, at the approval of CDFG, to an approved site with suitable habitat for these species. Surveys and relocation of wildlife may occur prior to construction; however, focused surveys must occur within 30 days prior to construction to ensure

that no special-status wildlife is present within the project site during construction. Survey and relocation methods shall be approved by CDFG prior to commencement of grading.

BIO-2: For Option 1 of the treated water pipeline, exclusionary fencing (i.e., silt fencing) shall be installed around the perimeter of the construction area where native vegetation is present, or where suitable habitat for special-status (terrestrial) species is present, as determined by a qualified biologist. The exclusionary fencing shall be backfilled (or buried) at the base of the fence to exclude reptiles from entering the work area. Installation of exclusionary fencing shall be verified by a qualified biologist prior to the commencement of construction or ground disturbing activities.

BIO-3: A preconstruction nest survey shall be conducted if construction and/or ground disturbing activities will commence between February 15 and August 15. To avoid impacts to native nesting birds, including coastal cactus wren, coastal California gnatcatcher, and least Bell's vireo, IRWD and/or its contractors shall retain a qualified biologist to conduct breeding bird surveys in potential nesting habitat within and adjacent to all project sites prior to construction or site preparation activities. Potential nesting habitat may include grassy and weedy areas, as well as shrubs and trees. Suitable nesting habitat in the vicinity of proposed disturbance areas shall be determined by the qualified biologist. The qualified biologist shall conduct a nest survey within five days of ground disturbance activities associated with construction, (such as site clearing, grading, or excavation) to determine if active nests of bird species protected by the Migratory Bird Treaty Act (MBTA) or the California Fish and Game Code are present in the construction zone or within a distance determined by CDFG or the qualified biologist.

If ground disturbance activities are delayed, additional pre-construction surveys will be conducted such that no more than five days will have elapsed between the last survey and the commencement of ground disturbance activities. Surveys shall include examination of trees, shrubs, and the ground within grassland for nesting birds, as several bird species known to occur in the area are shrub or ground nesters.

BIO-4: If active nests are found during surveys conducted in accordance with Mitigation Measure BIO-3, then the qualified biologist shall determine whether construction activities have the potential to disturb the nest(s) and determine appropriate construction limitations, which may include but are not limited to erection of sound barriers, full-time monitoring by a qualified biologist, or establishment of no-construction buffers (usually 300 ft for nesting song birds and 500 ft for nesting raptors and special-status bird species). In addition, the qualified biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure no inadvertent impacts to the nest occur. If necessary, limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel shall be instructed on the sensitivity of nest areas.

The results of the survey, and any avoidance measures taken, shall be submitted to IRWD within 30 days of completion of the pre-construction surveys and construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.

Significance after Mitigation: Less than significant.

Riparian Habitat, Natural Communities, Wetlands

Impact 3.4-2: Implementation of the proposed project could 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 CDFG or USFWS. (Less than Significant with Mitigation)

Construction of proposed Baker WTP and the Raw Water Pump Station would be within the boundaries of the previously developed sites. No riparian or other sensitive habitats are located within these sites. Approximately 0.7 acres of CSS and 0.33 acres of coastal prickly pear succulent scrub would be directly impacted if pipeline Option 1 is implemented. This would be considered a potentially significant impact. According to the City of Lake Forest's General Plan – Recreation Element, the City will require modifications to the project to avoid the impact, or require mitigation measures to reduce the impact to these plant communities if impacts are determined to be significant. Implementation of Mitigation Measure BIO-5 would reduce impacts to these native plant communities to less-than-significant levels. No other sensitive natural communities occur along the pipeline routes, which includes the proposed sewer line.

Serrano Creek is located immediately to the south of the proposed Baker WTP. During the reconnaissance survey, several runoff drains were observed on the existing facility site which appear to drain directly into Serrano Creek. Drainage into Serrano Creek is assumed, because the Baker site slopes to the south towards the Creek. Implementation of Mitigation Measure BIO-6 would reduce potential runoff impacts to Serrano Creek during construction of the proposed treatment plant to less than significant levels.

The habitat of Serrano Creek where the emergency overflow facility would be located is characterized as Southern Sycamore Alder Riparian Woodland; a CDFG-listed sensitive terrestrial community. The proposed discharge structure and downstream rip rap would have a footprint of approximately 52 ft by 45 ft within the creek bed and surrounding riparian habitat. Construction and operation of the overflow discharge structure could potentially result in some permanent loss of Southern Sycamore Alder Riparian Woodland. Implementation of Mitigation Measure BIO-7 would reduce impacts to sensitive riparian habitat to less than significant levels.

Temporary emergency overflow events into the creekbed would not result in any significant impacts to this sensitive natural community; however, small levels of sedimentation, siltation, or erosion could occur. Design of the discharge structure includes approximately 42 feet of rip-rap to dissipate flow and prevent erosion, siltation, and sedimentation in the creek. Impacts associated with operation of the emergency overflow would be considered less than significant.

Mitigation Measures

BIO-5: If Option 1 of the treated water pipeline is implemented, then coastal sage scrub and coastal prickly pear succulent scrub communities that are disturbed by construction shall be restored at the same location where impacts occur on a 1:1 ratio following the completion of construction activities. If coastal sage scrub or coastal prickly pear succulent scrub would be removed for construction purposes, a restoration plan shall be completed that specifies, at a minimum, the following: (1) the location of replacement sites; (2) the

quantity and species of plants to be planted; (3) a schedule and action plan to maintain and monitor the re-vegetation area; (4) a list of criteria and performance standards by which to measure success of the planting sites; (5) measures to exclude unauthorized entry into the re-vegetation/enhancement areas; and (6) contingency measures in the event that mitigation efforts are not successful. This restoration plan shall be completed prior to construction of the proposed project. Restoration activities, whether onsite or offsite, shall reuse vegetative material from the site of disturbance to the extent feasible.

BIO-6: IRWD shall require construction contractors to implement the following measures during construction of the Baker WTP and the sewer pipeline:

- The construction contractor shall install temporary erosion control measures around drains to reduce localized impacts to Serrano Creek in the area of the project and protect onsite drainages from excess sedimentation, siltation, and erosion. These measures shall consist of the installation of silt fencing, coirs, berms, and dikes to protect storm drain inlets and drainages.
- No changing of oil or other fluids, or discarding of any trash or other construction waste materials shall occur on the project site. Vehicles carrying supplies, such as concrete, shall not be allowed to empty, clean out, or otherwise place materials into natural areas on or immediately adjacent to the site.
- Any equipment or vehicles driven and/or operated within or adjacent to onsite drains shall be checked and maintained daily, to prevent leaks of materials that if introduced to Serrano Creek could be deleterious to aquatic life. No equipment maintenance shall be conducted near onsite drains.

BIO-7: During construction of the emergency overflow facility and associated rip rap, the construction contractor shall take measures to avoid impacts to sensitive riparian habitat within and surrounding Serrano Creek where feasible, such as installing construction impact boundaries marked by flagging or temporary fencing. If avoidance is not feasible, negative impacts to sensitive riparian habitat shall be mitigated at ratios based on the quality of habitat affected. In general, sensitive riparian habitat, such as Southern Sycamore Alder Riparian Woodland, shall be restored or enhanced at a ratio as determined in consultation with CDFG.

Significance after Mitigation: Less than significant.

Impact 3.4-3: Implementation of the proposed project could conflict or 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. (Less than Significant with Mitigation)

The construction of the proposed project may result in direct or indirect impacts to Serrano Creek and surrounding riparian habitat. As indicated in the Project Description, IRWD will install suitable discharge dissipation features within the creekbed to dissipate flows and reduce potential sedimentation, siltation, and erosion that could occur in the event of an emergency discharge. Serrano Creek is part of the San Diego Creek/Peters Canyon Wash subwatershed, which is the

largest subwatershed in the Newport Bay watershed and collectively drains into the northeastern end of Upper Newport Bay. Therefore, Serrano Creek is considered a Traditionally Navigable Water, is considered “waters of the U.S.,” and is subject to the jurisdiction of the USACE, as well as within the jurisdiction of CDFG.

IRWD would be required to obtain a Clean Water Act Section 404 Individual or Nationwide Permit from the USACE, a Clean Water Act Section 401 Water Quality Certification from the Regional Water Quality Control Board, and a Fish and Game Code 1602 Streambed Alteration Agreement (SAA) from CDFG for any discharge structure and dissipation features that would be installed within the creekbed. IRWD would be required to comply with all conditions associated with the Section 401, Section 404, and/or CDFG SAA permits. Implementation of Mitigation Measures BIO-8 and BIO-9 would reduce impacts to jurisdictional resources to a less than significant level.

Mitigation Measures

BIO-8: Construction activities within Serrano Creek shall be limited to dry season periods to avoid wet weather flow conditions in the creekbed.

BIO-9: No activities shall occur within Serrano Creek until appropriate permits have been obtained from the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Game.

Significance after Mitigation: Less than significant.

Biological Resource Policies

Impact 3.4-4: Implementation of the proposed project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant with Mitigation)

Twelve oak trees and several eucalyptus trees occur within the existing Baker site and two coast live oak trees border the south side of Serrano Creek Trail where the sewer line is proposed. Some of these trees may be impacted during the demolition of the existing facilities or the construction of new facilities and pipelines. A number of large trees, including sycamore, blue elderberry, and coast live oak occur within the Southern Sycamore Alder Riparian Woodland community in Serrano Creek which could be impacted and/or removed during construction of the discharge structure.

The City of Lake Forest (City) does not have tree ordinances for protecting tree species; therefore, a permit is not required for the removal of trees. However, a Eucalyptus Tree Cutting Permit must be obtained from the City prior to cutting, pruning or removing any eucalyptus trees during a city-imposed restriction period of April 1 through October 31. The City’s eucalyptus trees currently are threatened by the activity of the Eucalyptus Longhorn Borer Beetle, which

causes serious damage and destruction. The City has established a “restrictive period” for which no eucalyptus trees can be cut, pruned or removed during this time without a city-issued permit.

According to the Recreation and Resource Element of the City’s General Plan, development proposals are reviewed for potential biological resource impacts according to CEQA and applicable state and federal wildlife regulation. Where significant impacts are identified, the City requires modifications to the project to avoid the impact, or require mitigation measures to reduce the impact. The focus of the impact assessment to biological resources includes the following:

- Riparian and wetland habitat;
- Coastal sage scrub habitat;
- Rare and endangered plant and animal species;
- Wildlife movement corridors;
- Habitat fragmentation; and
- Significant tree stands.

Riparian and wetland habitats, rare and endangered plant and animal species, wildlife fragmentation, and impacts to CSS and coastal prickly pear succulent scrub have been discussed above. The proposed project is located within and surrounded by urban development; therefore, it is already fragmented from open lands and habitats that occur to the east of the cities’ limits. Moreover, there are no significant tree stands in or near the project boundary. Implementation of Mitigation Measure BIO-5 would reduce any impacts to CSS and coastal prickly pear succulent scrub to less than significant levels. Implementation of Mitigation Measure BIO-10 would reduce impacts to eucalyptus trees to a less than significant level.

Mitigation Measures

BIO-10: A Eucalyptus Tree Cutting Permit shall be obtained from the City of Lake Forest prior to cutting, pruning or removing any eucalyptus trees during the restricted period, April 1 through October 31. The transportation of or disposal of infected eucalyptus trees or logs shall occur only as permitted.

Significance after Mitigation: Less than significant.

References – Biological Resources

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3.5 Cultural Resources

This section is based on technical reports prepared by ESA (Bray, 2009; Bray, 2010; Bray, 2011) and Paleo Solutions, Inc (Paleo Solutions, 2009; Paleo Solutions, 2010a; Paleo Solutions 2010b).

Cultural resources are defined as prehistoric and historic sites, structures, and districts, or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious or any other reason. For analysis purposes, cultural resources may be categorized into three groups: archaeological resources, historic architectural resources, and contemporary Native American resources.

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric-era (before the introduction of writing in a particular area) or historic-era (after the introduction of writing). The majority of such places in California are associated with either Native American or Euro-American occupation of the area. The most frequently encountered prehistoric or historic Native American archaeological sites are village settlements with residential areas and sometimes cemeteries; temporary camps where food and raw materials were collected; smaller, briefly occupied sites where tools were manufactured or repaired; and special-use areas like caves, rock shelters, and sites of rock art. Historic-era archeological sites may include foundations or features such as privies, corrals, and trash dumps.

Historic architectural resources are standing structures of historic or aesthetic significance that are generally 50 years of age or older (i.e., anything built in the year 1960 or before). In California, historic architectural resources considered for protection tend to focus on architectural sites dating from the Spanish Period (1529-1822) through the early years of the Depression (1929-1930), although there has been recent attention paid to WWII and Cold War era facilities. Earlier historic resources are often associated with archaeological deposits of the same age.

Contemporary Native American resources, also called ethnographic resources, can include archaeological resources, rock art, and the prominent topographical areas, features, habitats, plants, animals, and minerals that contemporary Native Americans value and consider essential for the preservation of their traditional values. These locations are sometimes hard to define and traditional culture often prohibits Native Americans from sharing these locations with the public.

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plant and animal fossils. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. As defined in this section, paleontological resources are the fossilized remains or traces of multi-cellular invertebrate and vertebrate animals and multi-cellular plants, including their imprints from a previous geologic period. Fossil remains such as bones, teeth, shells, and leaves are found in the geologic deposits (rock formations) where they were originally buried. Paleontological resources include not only the actual fossil remains, but also the collecting localities, and the geologic formations containing those localities.

3.5.1 Environmental Setting

Natural Setting

The project area is located in a transitional area between an elevated coastal terrace and the Santa Ana Mountains, located to the north of the project area. Majority of the project area has been previously developed and is disturbed. The undisturbed areas of the project site are currently vegetated with Coastal Sage Scrub. A number of streams flow south from the foothills of the Santa Ana Mountains through Lake Forest and within the project vicinity. The nearest natural source of water to the project area is Serrano Creek, which is located adjacent to the southern property boundary of the proposed Baker WTP. In addition, Aliso Creek is located about a mile to the south and Borrego Canyon Wash is located approximately 0.75 miles to the north.

The Baker WTP project area is underlain by the Oso Sand Member of the Capistrano Formation, and Artificial fill. The Oso Sand Member of the Capistrano Formation was deposited during the late Miocene and early Pliocene (approximately 11 to 4 million years ago). This rock unit consists of massive to poorly bedded white to grey arkosic sandstone. The sands are typically poorly sorted with siltstone and conglomeratic lenses frequently interbedded with them. Concretions of well-cemented sand occur throughout the formation (Paleo Solutions, 2009).

The OC-33 project area is underlain primarily by the Paleocene (65-56 million years old) Silverado Formation, a nonmarine to marine facies, containing conglomerate, conglomeratic sandstone, sandstone, and discontinuous clay beds. Invertebrates such as oysters, sparse vertebrates, and fossilized avocado wood have been found in this formation, as well as significant finds of land plants. This formation is considered to be of moderate paleontological sensitivity (Paleo Solutions, 2010b).

Prehistoric Setting

While it is not certain when humans first came to California, their presence in southern California by about 11,000 Before Present (B.P.) has been well documented. At Daisy Cave, on San Miguel Island, cultural remains have been radiocarbon dated to between 11,100 and 10,950 years B.P. (Byrd and Raab, 2007). On the mainland, radiocarbon evidence confirms occupation of the Orange County and San Diego County coast by about 10,000 B.P. During the Paleo-Indian and Early Archaic periods (11,000–7000 B.P.) the climate of southern California became warmer and more arid and the human population, residing mainly in coastal or inland desert areas, began exploiting a wider range of plant and animal resources (Horne and McDougall, 2003).

Major Archaic Period traditions in southern California include the San Dieguito and La Jolla or Millingstone traditions. The people of the Early Archaic San Dieguito (10,000–8,000 B.P.) tradition inhabited the chaparral zones of southwestern California, exploiting the plant and animal resources of these ecological zones (Moratto, 1984). The Middle Archaic La Jolla or Millingstone (8000–4000 B.P.) tradition is essentially a continuation of the San Dieguito tradition. La Jolla groups lived in chaparral zones or along the coast, often migrating between the two. Coastal settlement focused around the bays and estuaries of coastal Orange and San Diego Counties.

La Jolla peoples produced large, coarse stone tools, but also produced well-made projectile points, and milling slabs. The La Jolla tradition represents a period of population growth and increasing social complexity. Also, this tradition is the first to evidence the substantial exploitation of marine resources and the grinding of seeds for flour, as indicated by the abundance of millings in the archaeological record (Horne and McDougall, 2003).

During the Late Holocene, there is evidence for the processing of acorns for food and for the increased importance of hunting and fishing (Horne and McDougall, 2003). Around 1,000 B.P., a period of sustained drought, known as the Medieval Warm, occurred. While this climatic event did not appear to reduce the human population, it did lead to a change in subsistence strategies in order to deal with the substantial stress on resources. The processing of plant foods increased, marine resources were intensively exploited, a wider variety of animals were hunted, and trade with neighboring regions became more frequent (Horne and McDougall, 2003).

During the Protohistoric Period (410–180 B.P.), at the time of the first Spanish presence in California, native populations of southern California were becoming less mobile and small sedentary villages formed. Although the intensity of trade had already been increasing, it now reached its zenith, with asphaltum (tar), seashells and steatite being traded from southern California to the Great Basin.

Ethnographic Setting

The project area is located on the border between the traditional territories of the Gabrielino and the Acjachemen or Juaneño people. At the time of European contact, Gabrielino territory extended inland from the coast to the vicinity of present-day San Bernardino, south to the vicinity of Newport Bay, and north to the vicinity of Topanga Canyon (Bean and Smith, 1978). Very few specifics are known of Gabrielino lifeways. Data collected and presented by Kroeber (1925) indicate that homes were made of tule mats on a framework of poles, but size and shape have not been recorded. Basketry and steatite vessels were used rather than ceramics; ceramics became common only toward the end of the Mission Period in the 19th century. The Gabrielino held some practices in common with other groups in southern California, such as the use of jimsonweed in ceremonies as did the Luiseño and Juaneño, but details of the practices and the nature of cultural interaction between the Gabrielino and other groups in southern California are unknown. The language of the Gabrielino people has been identified as a Cupan language within the Takic family, which is part of the larger Uto-Aztecan language family.

The Juaneño people were so called because of their association with Mission San Juan Capistrano and were linguistically and culturally related to the neighboring Luiseño, Cahuilla, and Cupeño. Acjachemen/Juaneño territory extended from just above Aliso Creek in the north to San Onofre Canyon in the south and inland to Santiago Peak and the ridges above Lake Elsinore (Bean and Shipek, 1978).

The Acjachemen lived in sedentary autonomous villages located in diverse ecological zones. Each settlement claimed specific fishing and collecting regions. Typically villages were located in valley bottoms, along coastal strands and streams, and near mountain foothills. Villages were

usually sheltered in coves or canyons, on the side of slopes near water, and in good defensive spots. Trails, hunting sites, temporary hunting camps, quarry sites and ceremonial and gaming locations were communally owned, while houses, gardens, tools, ritual equipment, and ornamentation were owned by individuals or families. Most groups had fishing and gathering sites along the coast that they visited annually from January to March when inland supplies were scarce. October to November was acorn-gathering time, when most of the village would settle in the mountain oak groves. Houses were conical in form, partially subterranean, covered with thatch, reeds, brush, or bark. Sweathouses were round and earth covered. Each village was enclosed with a circular fence and had a communal ceremonial structure at the center.

Historic Setting

The first European presence near the project area came in 1542, when Juan Rodriguez Cabrillo led an expedition along the coast. Europeans did not return until 1769, when the expedition of Gaspar de Portola traveled overland from San Diego to San Francisco. In the late 18th century, the Spanish began establishing missions in California and forcibly relocating and converting native peoples (Horne and McDougall, 2003). Mission San Juan Capistrano, established in 1776, was the nearest mission to the project area.

Disease and hard labor took a toll on the native populations; by 1900, the Native Californian population had declined by as much as 95 percent (Chartkoff and Chartkoff, 1984). In addition, native economies were disrupted, trade routes were interrupted, and native ways of life were significantly altered.

In 1821 Mexico, which included much of present-day California, became independent from Spain, and during the 1820s and 1830s the California Missions were secularized. Mission property, although it was supposed to have been held in trust for the Native Californians, was handed over to civil administrators and then into private ownership. After secularization, many former Mission Indians were forced to leave the Missions and seek employment as laborers, ranch hands, or domestic servants (Horne and McDougall, 2003).

In 1848 gold was discovered in California, leading to a huge influx of people from other parts of North America and in 1850 California became part of the United States of America. The opening of the Butterfield Overland Stage route in 1858 and later the California Southern Railroad line in 1882 greatly increased the number of people coming to southern California.

History of Project Area

The project area, along with all of the current city of Lake Forest, was encompassed by the Rancho Cañada de Los Alisos, owned by José Serrano. When the rancho system collapsed after California became an American state, American entrepreneur Dwight Whiting purchases large portions of the former rancho (City of Lake Forest, 2006). The small town of El Toro grew up around Whiting's agricultural industry. In the 20th century, the nearby El Toro Marine Base brought more residents to the area. The city of Lake Forest was incorporated in 1991.

Historic topographic maps (Santiago Peak 1942 and 1943 15', Corona 1902 30' USGS quadrangles) show no human-made features at the Baker site within the proposed Baker WTP project area. The 1943 Anaheim 15' USGS topographic map shows Peters Canyon Reservoir and the associated Peters Canyon road. Earlier maps show no features. Historic aerial photographs from 1946 and 1952 show no features at the Baker site, except for a road running roughly northeast to southwest across what is now the central portion of the BFP. The existing BFP is visible in a 1972 photograph.

The 1902 Corona 30' USGS quadrangle indicates a structure on the southeast side of the creek, on the opposite side of the creek from the sewer alignment. Historic aerial photographs indicate that the Serrano Creek trail existed as a dirt road by 1980. In 1981, the site of the housing development north of the creek was graded. Grading extended as far south as Serrano Creek, and included the entire Serrano Creek Trail area, and sewer pipeline project area (historicaerials.com).

Historic maps do not indicate any structures or other features at the OC-33 project site. Historic photographs (historicaerials.com) indicate that the site was vacant until 1972, when the current facilities and access roads are present.

3.5.2 Regulatory Framework

Numerous laws and regulations require federal, State, and local agencies to consider the effects a project may have on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the various agencies proposing the action, and prescribe the relationship among other involved agencies (e.g., State Historic Preservation Office and the Advisory Council on Historic Preservation). The National Historic Preservation Act (NHPA) of 1966, as amended; the California Environmental Quality Act (CEQA); and the California Register of Historical Resources (California Register), Public Resources Code (PRC) 5024, are the primary federal and State laws governing and affecting preservation of cultural resources of national, State, regional, and local significance.

Federal Regulations

National Register of Historic Places

First authorized by the Historic Sites Act of 1935, the National Register of Historic Places (National Register) was established by the NHPA of 1966, as “an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (Code of Federal Regulations [CFR] 36 Section 60.2). The National Register recognizes both historical-period and prehistoric archaeological properties that are significant at the national, state, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures,

and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior 1995):

- a) Are associated with events that have made a significant contribution to the broad patterns of our history;
- b) Are associated with the lives of persons significant in our past;
- c) Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;
or
- d) Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least fifty years old to be eligible for National Register listing (U.S. Department of the Interior 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance” (U.S. Department of the Interior 1995). The National Register recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

State Regulations

California Environmental Quality Act

CEQA, as codified in California Public Resources Code (PRC) Sections 21000 et seq., is the principal statute governing the environmental review of projects in the State. The CEQA Guidelines define a historic resource as: (1) a resource in the California Register; (2) a resource included in a local register of historic resources, as defined in PRC Section 5020.1(k) or identified as significant in a historic resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency’s determination is supported by substantial evidence in light of the whole record.

The California Register is “an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historic resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Section 5024.1[a]). The criteria for eligibility to the California Register are based on National Register criteria (PRC Section 5024.1[b]). Certain resources are

determined by the statute to be automatically included in the California Register, including California properties formally eligible for or listed in the National Register.

To be eligible for the California Register as a historic resource, a prehistoric or historic-period resource must be significant at the local, state, and/or federal level under one or more of the following criteria:

- 1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- 2) Is associated with the lives of persons important in our past;
- 3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
- 4) Has yielded, or may be likely to yield, information important in prehistory or history [14 CCR Section 4852(b)].

For a resource to be eligible for the California Register, it must also retain enough integrity to be recognizable as a historic resource and to convey its significance. A resource that does not retain sufficient integrity to meet the National Register criteria may still be eligible for listing in the California Register.

CEQA requires lead agencies to determine if a proposed project would have a significant effect on important archaeological resources, either historic resources or unique archaeological resources. If a lead agency determines that an archaeological site is a historic resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historic resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources.

A unique archaeological resource is "an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person [PRC Section 21083.2 (g)]."

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historic resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]).

Local

Lake Forest General Plan

The City of Lake Forest General Plan contains the following goals and policies related to cultural resources (City of Lake Forest, 1994):

- Goal 4.0** Conservation of important historic, archaeological, and paleontological resources.
- Policy 4.1 Protect areas of important historic, archaeological, and paleontological resources.
- Policy 4.2 Identify, designate, and protect buildings or sites of historical significance.

The project area is identified as being within a sensitive archaeological area in the City's general plan (City of Lake Forest, 1994, Figure RR-6).

Orange General Plan

The City of Orange General Plan, Cultural Resources Element, contains the following goals and policies related to cultural resources (City of Orange, 2009):

- Goal 4.0** Identify and preserve archaeological and cultural resources
- Policy 4.1 Identify, designate, and protect historically and culturally significant archaeological resources or sites.
- Policy 4.2 Recognize the importance of Santiago Creek as an archaeological resource
- Policy 4.3 Encourage curation of any cultural resources and artifacts recovered in the City for public education and appreciation
- Policy 4.5: Encourage private development to celebrate the cultural history of the community through project design

Orange County General Plan

The County of Orange General Plan, Cultural Resources Element, contains a number of goals, policies, objectives, and action plans related to cultural resources (County of Orange, 2008). Most relevant to this project are the policies governing the assessment of impacts to cultural resources during project planning, which state that identification of cultural resources shall be completed at the earliest stage of planning possible; that archaeological resources shall be identified, evaluated, and preserved if possible; and that paleontological resources shall be identified and preserved.

Paleontological Resources

Federal

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands or involves a federal agency license, permit, approval, or funding. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 et. seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands.

State

Paleontological resources are also afforded protection by CEQA. Appendix G (Part V) of the *CEQA Guidelines* provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will "...disrupt or adversely affect a paleontologic resource or site or unique geologic feature, except as part of a scientific study." Section 5097.5 of the Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

Professional Standards

The Society for Vertebrate Paleontology (SVP) has established standard guidelines for acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional paleontologists in the nation adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

3.5.3 Impacts and Mitigation Measures

Methods

Archival

A project-specific cultural resources literature and records search was conducted at the California Historical Resources Information System (CHRIS) South Central Coastal Information Center (SCCIC) on March 17, 2009. A records search for the OC-33 component was performed on December 3, 2010. The records searches included an examination of previous cultural resources survey coverage and reports, and known cultural resources within a 0.5-mile radius of the project area. Other sources reviewed included the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register, the National Register, the California State Historic Resources Inventory (HRI), and historic maps.

Field Survey

An archaeological survey of the Baker site, proposed treated water pipelines and Raw Water Pump Station were conducted by an ESA archaeologist on March 23, 2009. Undeveloped land was systematically surveyed in transects of 20 meters or less and the ground surface subject to careful inspection for cultural resources. Paved or highly disturbed land was subject to less intensive visual inspection. It was noted that much of the project area was highly disturbed. Some areas around the creek were too vegetated to be surveyed. Pipeline alignments were walked on both sides of centerline. The Raw Water Pump Station project area was completely covered by a concrete pad and existing Intertie facility.

An archaeological survey of the Serrano Creek sewer pipeline project component was conducted by an ESA archaeologist on June 25, 2010. Undeveloped land was systematically surveyed in transects of 20 meters or less and the ground surface subject to careful inspection for cultural resources.

An archaeological survey of the OC-33 project component was conducted by ESA archaeologist Madeleine Bray, MA, RPA, on December 15, 2010. The project area was systematically surveyed and the ground surface subject to careful inspection for cultural resources. The OC-33 facilities are situated on a flat, graded area that appears highly disturbed.

Native American Contact

A Sacred Lands File (SLF) search for the project area was requested from the Native American Heritage Commission (NAHC) in March, 2009. An updated SLF search for the sewer pipeline project area was requested from the NAHC in June, 2010.

Follow-up correspondence was conducted in April, 2009 and July, 2010, with all individuals and groups indicated by the NAHC as having affiliation with the project area. Follow-up correspondence consisted of a letter sent via certified mail describing the proposed project and a map indicating the project area. Recipients were requested to reply with any information they are able to share about Native American resources that might be affected by the proposed project.

Paleontology

A project-specific literature and map review, along with a review of previously recorded fossil localities at the Natural History Museum of Los Angeles, was conducted in April and May, 2009, and July and November, 2010, for the Baker WTP and Serrano Creek pipeline project area, and in December, 2010 for the OC-33 project area. A site survey was conducted on April 13, 2009 of the Baker site and the two proposed treated water pipeline alignments (Paleo Solutions, 2009). An additional survey was conducted July 9, 2010, of the sewer pipeline alignment (Paleo Solutions, 2010a). A third field survey was conducted on December 15, 2010, for the OC-33 project area (Paleo Solutions, 2010b). The goal of the field surveys was to determine the presence of paleontological resources within the disturbance limits of the project area. The surveys consisted of walking transects along bedrock outcrops and visually examining bedrock outcrops for exposed fossil remains.

Results

Archival

The results of records searches indicated that a total of 31 cultural resources have been recorded within 0.5 miles of the project components. Of these, 19 cultural resources have been recorded within 0.5 miles of the Baker site and the proposed treated water pipeline alignments and Serrano Creek pipeline. Six cultural resources have been recorded within 0.5 miles of the proposed Raw Water Pump Station. Six cultural resources have been recorded within 0.5 miles of the OC-33 project area. None of the previously recorded resources are located within the proposed project areas themselves. One of the previously recorded resources within the records search study area, resource 30-162283, Irvine Regional Park, is listed on both the California Register and National Register.

Nine of the resources identified as part of the records search are located within 0.25 miles of the proposed project areas (**Table 3.5-1**). Three are within 0.25 miles of the OC-33 site. Six are within 0.25 miles of the Baker site, of which two were recorded within 500 feet of the treated water pipeline alternatives. No resources are nearer than 0.25 miles to the Peters Canyon portion of the project area.

The Baker site has been completely or partially surveyed for cultural resource on four occasions, most recently in 1989. The Raw Water Pump Station project area has been completely surveyed on five occasions, most recently in 1990. Five cultural resources investigations have been completed within 0.5 miles of the OC-33 project area, of which three overlap the project area.

Native American Contact

SLF search results prepared by the NAHC on March 20, 2009, and July 2, 2010, failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC results also noted, however, that the absence of specific site information in the Sacred Lands File does not indicate the absence of cultural resources in any project area.

Two responses to the follow-up correspondence with Native American representatives have been received to date. The first, from Johntommy Rosas, requested more information on the project. The second response was from Robert Dorame of the Gabrielino/Tongva Indians of California Tribal Council. Mr. Dorame stated that he did not know of any specific cultural areas within a mile of the proposed project area; however, he did state that there was a higher likelihood of encountering cultural material along a major watercourse. Mr. Dorame also provided some historical information on the area.

Field Survey

No cultural resources were observed during the course of the archaeological field surveys.

**TABLE 3.5-1
 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1/4 MILE OF THE PROJECT AREA**

Trinomial/Primary	Date Recorded/ Updated	Description	Nearest project component
CA-ORA-39	1949/1978	Large prehistoric campsite on ridge – probably destroyed	Baker WTP
CA-ORA-647	1977/1994	Large prehistoric lithic scatter on knoll – site destroyed	Baker WTP
CA-ORA-648	1977/1994	Light lithic scatter and possible midden – site destroyed	Baker WTP
CA-ORA-773	1978	Prehistoric site with lithics and stone tools on hilltops – probably destroyed	Baker WTP
CA-ORA-1063	1984/1994	Dense lithic scatter on hill slope	Baker WTP
CA-ORA-1495	1984/1998	lithic scatter recorded as being within a highly disturbed alluvial deposit	Baker WTP
CA-ORA-1199H	1984	Historic: Tailings and surface workings from historic-era coal mine.	OC-33
30-176704	2003	Historic: Santiago Rifle Range, historic-era gun club and shooting range (1916-1945).	OC-33
30-162283	1976, 1983	Irvine Regional Park	OC-33

SOURCE: SCCIC, 2009

Paleontology

The literature and fossil locality search revealed that much of the Baker WTP project area is underlain by the Oso Sand Member of the Capistrano Formation (Paleo Solutions, 2009). The Oso Sand Member was deposited during the late Miocene and early Pliocene (~11 to 4 million years ago). Abundant vertebrate fossils have been collected from the Oso Sand Member throughout its areas of exposure. Based on the huge fossil assemblage recovered and collected within and near the proposed project site it is clear that the Oso Sand Member of the Capistrano Formation in this area has high paleontological sensitivity. Some of the project area is underlain by artificial fill, which has no paleontological sensitivity. Finally, the sewer pipeline may be underlain in places by the Pliocene Niguel Formation, a shallow marine deposit that overlies the Capistrano Formation.

The literature and fossil locality search for the OC-33 project area indicated that the project area was underlain primarily by the Silverado Formation (described above). No fossils in their records were located within the project boundaries, however a specimen of turtle was located in the Silverado Formation from within the Irvine Ranch area (Paleo Solutions, 2010b).

The pedestrian field survey indicated that the Baker site lies on top of undisturbed sediment from the Oso Sand member of the Capistrano Formation. The area is largely covered by asphalt and existing structures. However, an intact bedrock exposure near the buildings suggests fill is either non-existent in some areas or very shallow. In this exposure, no fossils were observed; however, concretion beds were observed which are known to contain various marine and terrestrial

vertebrate fossils. Additionally, pebble beds were observed which have produced many marine and terrestrial vertebrate fossils elsewhere (Paleo Solutions, 2009).

Bedrock, consisting of the Oso Sand Member, is exposed at the surface along much of Option 1 of the proposed pipeline. This proposed line would likely impact bedrock along the entire route. Option 2 will impact the Oso Sand Member and a section of artificial fill.

The sewer pipeline lies in the Oso Sand Member of the Capistrano Formation and possibly the Pliocene Niguel Formation, a shallow marine deposit that overlies the Capistrano Formation (Paleo Solutions, 2010a). The unconsolidated sediments of the bike path and downslope to the stream appear to be undisturbed, native sediments. Any disturbance of these sediments could potentially impact the Capistrano Formation and/or possibly the Niguel Formation. The north side of the bike path, adjacent to the housing complex, appears to be artificial fill and reworked sediment, though depth to bedrock is unknown.

No significant outcrops of the Silverado Formation were seen at the surface within the OC-33 project area. However, possibly due to a recent fire in the area, a large amount of recently-moved sediment lies at the surface, and may cover outcrops of the Silverado Formation. No bedding or cross-bedding was seen, though the sparse boulders of the Silverado formation as found at the surface were quite well-cemented. No fossil material was found at the project site or within 50 feet of its boundaries during the survey (Paleo Solutions, 2010b).

Significance Criteria

For the purposes of this analysis, and consistent with Appendix G of the *CEQA Guidelines*, a project is considered to have a significant impact if it would lead to:

- A substantial adverse change in the significance of a historical resource that is either listed or eligible for listing in the National Register, the California Register, or a local register of historic resources;
- A substantial adverse change in the significance of a unique archaeological resource;
- Disturbance or destruction of a unique paleontological resource or site or unique geologic feature; or
- Disturbance of any human remains, including those interred outside or formal cemeteries.

CEQA provides that a project may cause a significant environmental effect where the project could result in a substantial adverse change in the significance of a historical resource (Public Resources Code, Section 21084.1). CEQA Guidelines Section 15064.5 defines a “substantial adverse change” in the significance of a historical resource to mean physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be “materially impaired” (CEQA Guidelines, Section 15064.5[b][1]).

CEQA Guidelines, Section 15064.5(b)(2), defines “materially impaired” for purposes of the definition of “substantial adverse change” as follows:

The significance of a historical resource is materially impaired when a project:

- (A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- (B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- (C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

In accordance with CEQA Guidelines Section 15064.5(b)(3), a project that follows the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* is considered to have mitigated impacts to historic resources to a less than significant level.

Historic resources are usually 50 years old or older and must meet at least one of the criteria for listing in the California Register (such as association with historical events, important people, architectural significance, or possess important data value), in addition to maintaining a sufficient level of physical integrity (CEQA Guidelines Section 15064.5[a][3]).

Impacts Discussion

The following is a discussion of the potential effects of the proposed project to cultural resources according to the key issue areas identified in Appendix G of the *CEQA Guidelines*.

Historic Resources

No archaeological or built architectural cultural resources either listed on or eligible for the National Register, California Register, or local register are known to be located within the project site, nor are there any resources within the project area that meet CEQA's definition of a unique archaeological resource. Therefore, there would be no impact to known historical resources as a result of project implementation.

Archaeological Resources

Impact 3.5-1: Project construction could affect an archaeological resource. (Less than Significant with Mitigation)

Baker WTP, Treated Water Pipeline, and Sewer Pipeline

No cultural resources have been recorded in the within the boundaries of proposed disturbance for the Baker WTP, treated water pipeline, and sewer pipeline; and no cultural resources were observed during the 2009 and 2010 archaeological surveys. Nineteen cultural resources have been recorded within 0.5 miles of the Baker site, the proposed treated water pipeline alignments, and sewer pipeline. All of these resources are prehistoric archaeological sites. Six of the resources are within 0.25 miles of the project area; two sites have been recorded within 500 feet of the treated water pipeline alternatives.

The area has been previously disturbed by the construction of the existing BFP, existing pipelines that are located in the proposed pipeline alignments, the adjacent housing development, and the Serrano Creek trail. However, the large number of prehistoric archaeological sites in close proximity to the project area and its location along a reliable water source indicates that the project area has some archaeological sensitivity, particularly for prehistoric archaeological resources.

Since the nature of the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb subsurface archaeological resources that were not observable on the surface, which would result in a significant impact. However, with implementation of Mitigation Measure CUL-2, impacts associated with unanticipated discovery of archaeological resources with be reduced to a less than significant level. Given the greater archaeological sensitivity associated with the alignments for the treated water pipeline and sewer pipeline, the implementation of construction monitoring as described in Mitigation Measure CUL-1 would further ensure that potential impacts associated with ground disturbance are reduced to less-than-significant levels.

Raw Water Pump Station

No cultural resources have been recorded in the project area, and no cultural resources were observed during the 2009 archaeological survey. While the number of archaeological sites (six) in close proximity to the project area indicates that the area has some archaeological sensitivity, the area has been previously disturbed by the construction of the existing pump station. Since the nature of the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb subsurface archaeological resources that were not observable on the surface, which would result in a significant impact. However, with implementation of Mitigation Measure CUL-2, impacts associated with unanticipated discovery of archaeological resources with be reduced to a less than significant level.

OC-33 Meter Exchange

No cultural resources have been recorded in the project area, and no cultural resources were observed during the 2010 archaeological survey. While the number of archaeological sites (six) in close proximity to the project area indicates that the area has some archaeological sensitivity, the area has been previously disturbed by the construction of the existing facilities. Much of the ground disturbance at the OC-33 site would take place within previously disturbed soils. However, since the nature of the proposed project would involve ground-disturbing activities, it is

possible that such actions could unearth, expose, or disturb subsurface archaeological resources that were not observable on the surface, which would result in a significant impact. However, with implementation of Mitigation Measure CUL-2, impacts associated with unanticipated discovery of archaeological resources will be reduced to a less than significant level. Mitigation Measures

Mitigation Measures

CUL-1: Archaeological Monitoring. Prior to the start of any earth-moving activity, an archaeological monitor shall be retained by the IRWD to monitor ground-disturbing activities associated with the construction of the treated water pipelines and the Serrano Creek sewer pipeline, including but not limited to grading, excavation, brush clearance and grubbing. The monitor shall be, or shall work under the supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (Department of the Interior, 2010). The duration and timing of monitoring shall be determined by the qualified archaeologist in consultation with the IRWD and based on the grading plans. Initially, all ground-disturbing activities shall be monitored. However, the qualified archaeologist, based on observations of soil stratigraphy or other factors, and in consultation with IRWD, may reduce the level of monitoring as warranted. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated.

Due to the sensitivity of the project area for Native American resources, at least one Native American monitor may, if requested, also monitor ground-disturbing activities in the project area. The monitor(s) shall be selected from amongst the Native American groups identified by the Native American Heritage Commission as having affiliation with the project area.

CUL-2: Unanticipated Discovery. During construction of all project components, if a cultural resource is encountered, construction activities shall be redirected away from the immediate vicinity of the find until it can be evaluated by a qualified archaeologist. If the find is determined to be potentially significant, the archaeologist, in consultation with the IRWD and appropriate Native American group(s) (if the find is a prehistoric or Native American resource), shall develop a treatment plan. Construction activities shall be redirected to other work areas until the treatment plan has been implemented or the qualified archaeologists determine work can resume in the vicinity of the find.

Significance after Mitigation: Less than significant.

Paleontological Resources

Impact 3.5-2: Implementation of the proposed project could adversely affect paleontological resources. (Less than Significant with Mitigation)

The Baker WTP project area lies on top of undisturbed sediment from the Oso Sand Member of the Capistrano Formation, as well as artificial fill (Paleo Solutions, 2009 and 2010). The Oso

Sands have high paleontological sensitivity, while artificial fill has no paleontological sensitivity (Paleo Solutions, 2009).

The OC-33 project area is underlain by the Silverado formation, which has a moderate paleontological sensitivity. Some artificial fill is also present in the project area, which has no sensitivity (Paleo Solutions, 2010b).

Fossils and their associated contextual data are nonrenewable scientific resources; the loss of these resources resulting from a project, for example due to construction-related excavation and ground disturbance, would be a significant adverse impact. Earthmoving operations can result in the destruction of fossils and rock units within the construction disturbance limits.

Implementation of Mitigation Measure CUL-3 and CUL-4 during project construction would ensure potential impacts to paleontological resources are reduced to less than significant levels.

Mitigation Measures

CUL-3: Paleontological Mitigation and Monitoring Plan. Prior to the start of any earth-moving activity, IRWD shall retain an Orange County Certified Paleontologist. The Paleontologist shall prepare a Paleontological Mitigation and Monitoring Plan that provides for the treatment of paleontological resources in accordance with the mitigation guidelines for areas of high potential outlined by the SVP. The mitigation and monitoring plan shall address pre-construction salvage and reporting; pre-construction contractor sensitivity training; procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report.

CUL-4: Paleontological Monitoring. All earth moving activities in the Oso Sand Member of the Capistrano Formation and the Silverado Formation shall be monitored full time, unless the paleontologist determines that sediments are previously disturbed or there is no reason to continue monitoring in a particular area due to other depositional factors, which would make fossil preservation unlikely or deemed scientifically insignificant. If it becomes apparent to the paleontologist that bedrock will not be impacted in an area, monitoring may be suspended temporarily until bedrock is impacted again. Spot-checking by the paleontologist will be allowed to determine if bedrock is being impacted. If impacts to bedrock resume, full-time monitoring will resume. In the event fossils are exposed during earth moving, construction activities shall be redirected to other work areas until the procedures outlined in the Paleontological Mitigation and Monitoring Plan have been implemented or the paleontologist determines work can resume in the vicinity of the find.

Significance after Mitigation: Less than significant.

Human Remains

Impact 3.5-3: Implementation of the proposed project could result in the disturbance of human remains. (Less than Significant with Mitigation)

The land use designations for the proposed project components do not include cemetery uses; no known human remains exist at either project area. However, since the nature of the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains interred outside of a formal cemetery. Mitigation Measure CUL-5 is recommended to ensure that impacts to human remains would be less than significant.

Mitigation Measures

CUL-5: If human remains are encountered unexpectedly during construction excavation and grading activities, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC will then identify a Most Likely Descendent (MLD), of the deceased Native American, who will provide recommendations as to the future disposition of the remains. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices and taking into account the possibility of multiple human remains, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the MLD, as prescribed in this section (PRC 5097.98).

Significance after Mitigation: Less than Significant

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3.6 Geology, Soils and Mineral Resources

This section evaluates whether construction and operation of the proposed project would result in potential adverse impacts related to local geology, existing soil conditions, seismicity, or mineral resources. The evaluation and analysis of geology, soils, mineral resources, faulting and seismicity are based, in part, on review of various geologic maps and reports. The geologic and geotechnical evaluation of the proposed project also include review of available geologic maps, resources, geotechnical studies, and summaries.

3.6.1 Environmental Setting

Regional Setting

The project area lies within a region of California referred to as the Peninsular Ranges geomorphic province.¹ The Peninsular Ranges consist of a series of ranges that are separated by northwest trending valleys, subparallel to faults branching off of the San Andreas Fault. The trend of topography is similar to the Coast Ranges, but the geology is more like the Sierra Nevada, with granite rock intruding the older metamorphic rocks. The province extends into lower California and is bound on the east by the Colorado Desert Province (CGS, 2002a).

The cities of Lake Forest and Orange are near the coastal margin of the Los Angeles Basin, which includes Orange County, and is underlain by more than 15,000 feet of stratified sedimentary rocks of marine origin. The Santa Ana Mountains and adjacent hills are located in the northeastern portion of the cities and form the eastern boundary of the Los Angeles Basin. The San Andreas fault zone, about 40 miles northeast of the proposed project area, is the boundary between the Pacific Plate, on the west side of the zone, and the North American Plate on the east side. One of the results of the movement of these plates is the regional rock deformation that is expressed in the general northwest trend of valleys and ridges in the Los Angeles Basin. All of the geologic formations in the Los Angeles Basin are on the Pacific Plate (Oakeshott, 1978).

Topography

The City of Lake Forest comprises about 17 square miles in a transition zone between an elevated coastal terrace and the Santa Ana Mountains. The western portion of the City, on the coastal terrace, is about 200 feet above mean sea level (amsl). The land becomes progressively higher and steeper to the east, eventually reaching elevations above 1,500 feet amsl along the ridgeline of the Santa Ana Mountains. Traces of fault segments associated with the Newport- Inglewood Fault Zones parallel the ocean edge of the coastal terrace. Traces of the Elsinore Fault Zone follow the ridge of the Santa Ana Mountains (Yerkes, 1965).

The City of Orange encompasses two general typologies of terrain: 1) an alluvial plain (deposits of silt, clay, gravel, or sand) that underlies the central and western portions of the planning area;

¹ A geomorphic province is an area that possesses similar bedrock, structure, history and age. California has 11 geomorphic provinces (CGS, 2002a).

and 2) a series of low hills (foothills of the Santa Ana Mountains) found in the eastern and northern portions of the planning area. Generally, the alluvial plain is underlain by many thousands of feet of fluvial and floodplain sediments. Certain areas of the plain are adjacent to major watercourses: the Santa Ana River and Santiago Creek. The low hills are underlain by bedrock of mostly Tertiary marine and nonmarine sediments). Active faults in proximity to the City include the Elsinore fault zone and Newport Inglewood fault zone.

The project area at the Baker site includes an upper area that ranges in elevation from 645 feet to 628 feet and a lower area that ranges in elevation from 615 feet to 555 feet. The upper area has a gradual slope of approximately 60 feet descending to the south and west, with the toe of the slope bordering residential properties. The lower area slopes toward the south and east, descending to Serrano Creek.

Soils

Approximately three dozen soil types can be found throughout the Lake Forest region. These soil typologies are related to the substrate on which they have developed. Soil types or series are based on a variety of distinguishing characteristics, such as texture, slope, and agricultural capability. The Oso Member of the Capistrano Formation is predominant at the Baker site with a typical profile of sandy loam and weathered bedrock, with local areas of surficial deposits of older alluvium and artificial fill ((Paleo Solutions, 2009; USDA, 2010; GMU, 2010).

Within the City of Orange, the Raw Water Pump Station is mapped primarily with Alo Clay which has a typical profile of clay and weathered bedrock (USDA, 2010). In general the Alo Clay has a moderate erosion potential and a high shrink/swell potential. The site is underlain by bedrock of the Sespe and Vaqueros Formations, with minor amounts of artificial fill also present (GMU, 2010). The bedrock consists of sandstone with lesser amounts of siltstone and conglomeratic sandstone, generally dense to very dense (GMU, 2010).

The OC-33 site is located in the foothills of the Santa Ana Mountains in unincorporated Orange County. Soils on this site are mapped as Cieneba sandy loam characterized generally by sandy loam underlain by weathered bedrock (USDA, 2010). Cieneba soils are considered somewhat excessively drained (USDA, 2010). The OC-33 project area is underlain primarily by the Paleocene (65-56 million years old) Silverado Formation, a nonmarine to marine facies, containing conglomerate, conglomeratic sandstone, sandstone, and discontinuous clay beds (Paleo Solutions, 2010).

Seismicity

Southern California is a region of high seismic activity with numerous active and potentially active faults.² Major earthquakes have affected the region in the past and can be expected to occur

² An *active* fault is defined by the California Geological Survey is a fault that has had surface displacement within Holocene time (approximately the last 11,000 years). A *potentially active* fault is a fault that has shown evidence of surface displacement during the last 1.6 million years, unless direct geologic evidence demonstrates inactivity for the last 11,000 years or longer. This definition does not mean that faults lacking evidence of surface displacement are necessarily inactive. *Sufficiently active* is also used to describe a fault if there is some evidence that Holocene surface displacement occurred on one or more of its segments or branches (Hart, 1997).

again in the near future on one of the active faults within the vicinity of Lake Forest. The principal active faults in the region include the Newport-Inglewood and Elsinore fault zones. Additional active faults at a greater distance from the City include the Palos Verdes Fault zone, the San Jacinto Fault zone, the San Andreas Fault Zone, the Sierra Madre Fault zone, and the Santa Monica-Raymond Fault zone (City of Lake Forest, 2006).

Portions of two potentially active faults, the Peralta Hills fault and the El Modena fault, are located in Orange near the proposed Raw Water Pump Station and OC-33 site. These faults are shown in **Figure 3.6-1**. With no recent record of activity, prevailing scientific thought is that neither is anticipated to be capable of generating significant earthquakes. Geologists debate whether the El Modena fault is active. The Peralta Hills fault is an approximately east/west-trending, north-dipping, thrust fault, that runs from the crossing of Lincoln Avenue over the Santa Ana River on the northwest, easterly along the base of the Peralta Hills and into the City of Villa Park, and then southerly into the hills west of Peters Canyon Reservoir. The El Modena fault, a southwest-dipping, north/south-trending, normal fault, runs from its intersection with the Peralta Hills fault at the base of Peralta hills, southeasterly to Chapman Avenue (City of Orange, 2009).

Richter magnitude (M) is a measure of the size of an earthquake as recorded by a seismograph, the standard instrument that records ground shaking. The reported Richter magnitude for an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically, with each whole number step representing a tenfold increase in the amplitude of the recorded seismic waves. Earthquake magnitudes are also measured by their moment magnitude (M_w), which is related to the physical characteristics of a fault, including the rigidity of the rock, the size of fault rupture, and the movement or displacement across a fault (CGS, 2002b).

The project sites are roughly bound by the Newport- Inglewood Fault zones to the south and the Elsinore fault zones to the north (Figure 3.6-1). The Newport- Inglewood fault zone was responsible for both the 1933 Long Beach Earthquake (magnitude $M_{6.3}$) and the 1920 Inglewood Earthquake (estimated magnitude $M_{4.9}$).

Table 3.6-1 lists the location of regionally active faults significant to the project areas due to proximity, activity status, date of most recent motion, and maximum moment magnitude (M_{max}). The M_{max} is the strongest earthquake that is likely to be generated along a fault and is based on empirical relationships of surface rupture length, rupture area, and fault type, which are all related to the physical size of fault rupture and displacement across a fault.

The Elsinore fault is a 180 kilometer right-lateral strike-slip zone that is one of the largest in southern California. At its northern end, the Elsinore fault zone splays into two segments, the Chino fault and the Whittier fault. At its southern end, the Elsinore fault is cut by the Yuba Wells fault from what amounts to its southern continuation: the Laguna Salada fault. Several of the fault strands that make up the Elsinore fault zone possess their own names. Northwest of Lake Elsinore are the Glen Ivy North and Glen Ivy South faults. Heading southeast from Lake Elsinore, the two parallel fault strands are the Wildomar fault (the most easterly) and the Willard fault.



SOURCE: ESA, 2010.

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Figure 3.6-1
Principal Faults in the Project Area

**TABLE 3.6-1
 ACTIVE FAULTS IN THE PROJECT VICINITY**

Fault	Location and Direction from Project Site	Recency of Movement	Fault Classification^a	Historical Seismicity^b	Maximum Moment Magnitude Earthquake (Mmax)^c
Elsinore	7 miles from Raw Water Pump Station	Historic (1910 rupture) Holocene	Active	M 6.0 1910	7.5
Newport-Inglewood	7 miles southwest of Baker site	Historic (1933 rupture) Holocene	Active	M 6.4 1933	7.4
El Modeno	2 miles west of Raw Water Pump Station	Quaternary	Potentially Active	Quaternary	Unknown
Peralta Hills	1 mile west of Raw Water Pump Station	Possible Holocene rupture	Potentially Active	Late Quaternary	Unknown

^a Jennings, 1994, and Hart, 1997. An active fault is defined by the California Geological Survey as one that has had surface displacement within approximately the last 11,000 years. A potentially active fault is defined as a fault that has showed evidence of surface displacement during approximately the last 1.6 million years.

^b Richter magnitude (M) and year for recent and/or large events. Richter magnitude scale reflects the maximum amplitude of a seismic wave measured at a distance of 100 kilometers from the epicenter.

^c Moment magnitude is related to the physical size of a fault rupture and movement across a fault. The maximum moment magnitude (Mmax) is the strongest earthquake that is likely to be generated along a fault and is based on empirical relationships of surface rupture length, rupture area, and fault type.

SOURCES: Jennings, 1994; Hart, 1997; Hart et al, 1989; SCEDC, 2010; GMU, 2010.

The Laguna Salada fault ruptured in 1892 in a magnitude M7 earthquake, but the main trace of the Elsinore fault zone was the magnitude M6 earthquake of 1910 near Temescal Canyon (SCEDC, 2010).

The Newport-Inglewood fault is a 75 kilometer right- lateral, local reverse slip associated with fault steps. Surface trace is discontinuous in the Los Angeles Basin, but the fault zone can easily be identified by the existence of a chain of low hills extending from Culver City to Signal Hill. South of Signal Hill, it roughly parallels the coastline until just south of Newport Bay, where it heads offshore, and becomes the Newport-Inglewood - Rose Canyon fault zone (SCEDC, 2010).

Seismic Hazards

Surface Fault Rupture

Seismically induced surface fault rupture or ground rupture is defined as the physical displacement of surface deposits in response to an earthquake’s seismic waves. The magnitude and nature of fault rupture can vary for different faults, or even along different strands of the same fault. Surface fault rupture is considered more likely along active faults.

The project sites are not located within an Alquist-Priolo Earthquake Fault Zone, as designated by the Alquist-Priolo Earthquake Fault Zoning Act, and no mapped active faults are known to pass through the immediate project region (CGS, 2010). Therefore, the risk of ground rupture at the project site is very low.

Ground Shaking

Earthquakes in the southern California region could produce strong ground shaking in the project vicinity. Ground-shaking intensity is partly related to the size of an earthquake, the distance to the site, and the response of the geologic materials that underlie a site. As a rule, the greater the earthquake magnitude and the closer the fault rupture to a site, the greater the intensity of ground shaking. Violent ground shaking is generally expected at and near the epicenter of a large earthquake; however, different types of geologic materials respond differently to earthquake waves. For instance, deep unconsolidated materials can amplify earthquake waves and cause longer periods of ground shaking. Based on the proximity of the site to the regional active faults, in particular the Elsinore and Newport-Inglewood faults, there is a potential for significant ground-shaking within the project site.

Ground motion during an earthquake can be described using the motion parameters of acceleration, velocity, and duration of shaking. A common measure of ground motion is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. For example, the maximum PGA recorded during the 1989 Loma Prieta earthquake (San Andreas fault) was in the vicinity of the epicenter, near Santa Cruz, at 0.64 g. According to estimates made by the CGS, the PGA at the Baker site could reach up to 0.374 g, up to 0.392 g at the Raw Water Pump Station, and up to 0.446 g at OC-33 (CGS, 2010b, 2010c; GMU, 2010).³

Liquefaction

Soil liquefaction, a phenomenon in which soils lose strength, can result in ground failure. The soils most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained soils that occur close to the ground surface, usually at depths of less than 50 feet. In general, upland areas have a low liquefaction potential, except where significant alluvium is present in creek bottoms or swales.

³ A probabilistic seismic hazard map shows the predicted level of hazard from earthquakes that seismologists and geologist believe could occur. The map's analysis takes into consideration uncertainties in the size and location of earthquakes and the resulting ground motions that can affect a particular site. The maps are typically expressed in terms of probability of exceeding a certain ground motion. These maps depict a 10% probability of being exceeded in 50 years. There is a 90% chance that these ground motions will NOT be exceeded. This probability level allows engineers to design buildings for larger ground motions than seismologists think will occur during a 50-year interval, making buildings safer than if they were only designed for the ground motions that are expected to occur in the 50 years. Seismic shaking maps are prepared using consensus information on historical earthquakes and faults. These levels of ground shaking are used primarily for formulating building codes and for designing buildings. (CGS, 2008a)

According to the City of Lake Forest 1994 General Plan Safety Element, the entire City is located within an area of low liquefaction hazard (City of Lake Forest, 1994). According to the California Department of Conservation (CDC), the Baker site and the treated water pipelines would not be located in a seismic hazard zone for liquefaction (CDC, 2001) (**Figure 3.6-2**). However, the proposed sewer pipeline would be located within the seismic hazard zone for liquefaction associated with Serrano Creek (CDC, 2001) (Figure 3.6-2). According to the City of Orange Public Safety Element and the CDC the proposed Raw Water Pump Station site would not be located in a liquefaction hazard area (CDC, 1998; City of Orange, 2009) (**Figure 3.6-3**). According to the County of Orange, the OC-33 site is not located in a liquefaction hazard area (County of Orange, 2005) (**Figure 3.6-4**).

Seismically Induced Landslides

A landslide is a mass of rock, soil, and debris displaced down-slope by sliding, flowing, or falling. The susceptibility of land (slope) failure is dependent on the slope and geology as well as the amount of rainfall, excavation, or seismic activities. Factors that decrease resistance to movement in a slope include pore water pressure, material changes, and structure. Removing the lower portion (the toe) of a slope decreases or eliminates the support that opposes lateral motion in a slope. Shaking during an earthquake may lead materials in a slope to lose cohesion and collapse.

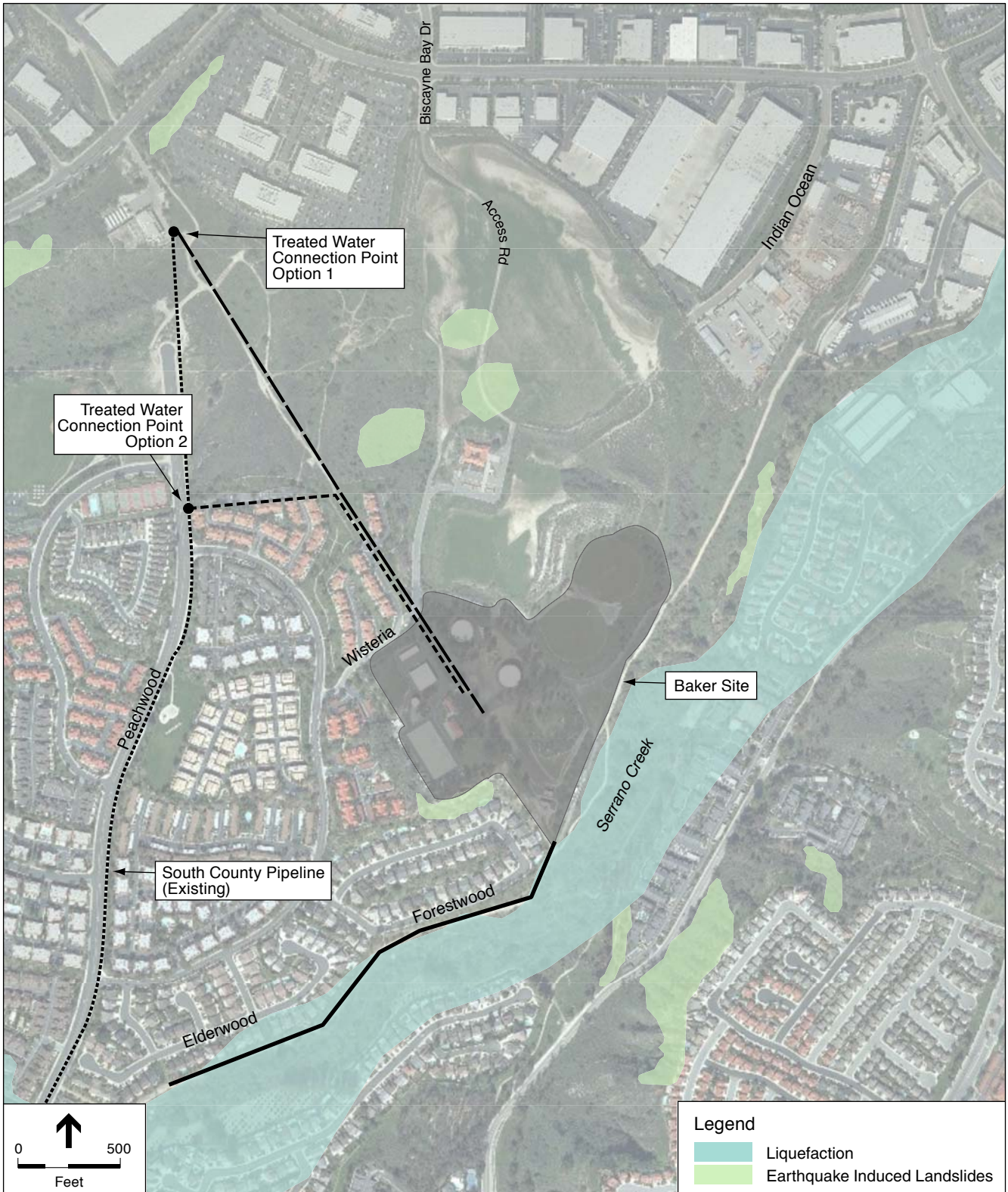
According to the CDC, the Baker site, treated water pipeline, and sewer pipeline, are not located in an area that is considered susceptible to an earthquake-induced landslide (CDC, 2010) (Figure 3.6-2). The Raw Water Pump Station also is not located near an area considered susceptible to an earthquake-induced landslide (CDC, 1998; City of Orange, 2009) (Figure 3.6-3). According to the County of Orange, the OC-33 site is not located in an area considered susceptible to an earthquake-induced landslide (County of Orange, 2005) (Figure 3.6-4).

Geologic Hazards

Landslides and Slope Failure

Ground failure is dependent on the slope and geology as well as the amount of rainfall, human activities such as excavation, or seismic activity. A slope failure is a mass of rock, soil, and debris displaced downslope by sliding, flowing, or falling. Landslide-susceptible areas are characterized by steep slopes and downslope creep of surface materials. Debris flows consist of a loose mass of rocks and other granular material that, if saturated and present on a steep slope, can move downslope.

The rate of rock and soil movements can vary from a slow creep over many years to a sudden mass movement. Landslides occur throughout the state of California, but the density of incidents increases in zones of active faulting. There is a low potential for landslides at all project sites (City of Lake Forest, 1994; CDC 1998, 2001; City of Orange, 2009; County of Orange, 2005).



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker WTP Draft EIR . 208671
Figure 3.6-2
 Landslide / Liquefaction Map



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker WTP Draft EIR . 208671
Figure 3.6-3
 Landslide / Liquefaction Map



SOURCE: ESA, 2010.

IRWD Baker WTP Draft EIR . 208671
Figure 3.6-4
Landslide / Liquefaction Map

Expansive Soils

Expansive soils possess a shrink-swell characteristic that can result in structural damage over a long period of time. Expansive soils are largely comprised of silicate clays, which expand in volume when water is absorbed and shrink when dried. Soils in and around the Baker site and OC-33 do not exhibit shrink-swell characteristics as their composition is that of sandy loam. The Alo Clay soils found throughout the Raw Water Pump Station area may potentially exhibit shrink-swell characteristics (USDA, 2010).

Erosion

Erosion is the detachment and movement of soil materials through natural processes or human activities. The detachment of soil particles can be initiated through the suspension of material by wind or water. Silt-sized particles are the most easily removed particles, due to low particle mass and cohesiveness. Soils in the project areas are susceptible to wind erosion, especially during the spring and fall months when wind speeds increase. Soils at OC-33 also would be susceptible to erosion due to storm water runoff during the rainy season.

Settlement

Settlement is the gradual downward movement of an engineered structure (such as a building) due to the compaction of unconsolidated material below the foundation. Settlement accelerated by earthquakes can result in vertical or horizontal separations of structures or portions of one structure; cracked foundations, roads, sidewalks, and walls; and (in severe situations) building collapse and bending or breaking of underground utility lines. Soils susceptible to settlement can only be determined on a site specific basis as the engineering characteristics that determine the ability to accommodate new loadings without settling can vary considerably from site to site. The presence of any artificial fill, if discovered, can be particularly susceptible to settlement unless given appropriate compaction and geotechnical preparation.

Mineral Resources

The California Geological Survey (CGS) classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act of 1975. Mineral Resource Zones (MRZ) have been designated to indicate the significance of mineral deposits. The MRZ categories are as follows:

MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.

MRZ-2: Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

MRZ-3: Areas containing mineral deposits the significance of which cannot be evaluated from available data.

MRZ-4: Areas where available information is inadequate for assignment to any other MRZ.

There are no MRZs in the vicinity of the project sites.

3.6.2 Regulatory Framework

State

California Building Code (CBC)

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The CBC is based on the International Building Code. The 2010 CBC is based on the 2009 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction (AISC), and the American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

CCR Title 24 also includes the California Residential Code (based on the 2009 International Residential Code) and the California Green Building Code, which have been adopted as separate documents (CCR Title 24, Part 2.5 and 11, respectively). The California Residential Code includes structural design standards for residential one and two family dwellings and covers all structural requirements for conventional construction. All other structures including multi-family residential projects are found in the CBC. The California Green Building Code (CALGreen)(June 2010) includes mandatory measures for non-residential development, including light pollution reduction, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, pollutant control and VOC limits, indoor air quality etc.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 was developed to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development permit may be granted for a site within a Seismic Hazard Zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design. The project site coincides partially within a Seismic Hazard Zone for liquefaction, as designated by the California Geological Survey. Therefore, evaluation and mitigation of potential liquefaction hazards must be conducted in accordance with the California Geological Survey, Special Publication 117, adopted March 13, 1997 by the State Mining and Geology Board pursuant to the Seismic Hazards Mapping Act, as discussed in the Impacts and Mitigations chapter below.

Local

Lake Forest General Plan

The City of Lake Forest General Plan (City of Lake Forest, 1994) provides goals and policies, related to seismicity and seismic hazards, which identifies and assesses natural and human-made safety hazards and minimizes associated danger to life and property. These hazards have a direct impact on the quality of life and the well-being of residents of Lake Forest and Orange County.

Safety and Noise Element

The Safety and Noise Element of the Lake Forest General Plan is concerned with providing a comprehensive analysis of seismic factors, among other issues, to reduce loss of life, injuries, damage to property, and social and economic impacts resulting from future earthquakes. The Element focuses on current developmental policies, as well as the allocation of future land uses, and its purpose is to serve as a guide for future development such that development will be responsive to seismic safety considerations. To provide a general direction for development in the City, goals, policies, and implementation programs regarding seismic safety are presented in the Element. The goal and policy applicable to the proposed project are:

Goal 1.0: Reduction in the risk to the community from hazards associated with the geologic conditions, seismic activity and flooding.

Policy 1.1: Reduce the risk of impacts from geologic and seismic hazards.

Orange General Plan

The City of Orange General Plan contains goals, policies, and plans that are intended to guide development decisions. The General Plan includes a Public Safety Element and the following are goals and policies that are related to seismicity and geologic hazard:

Goal 1.0: Protect residents and businesses from seismic hazards and other geologic constraints.

Policy 1.1: Minimize the potential loss of life and damage to structures that may result from an earthquake.

Orange County General Plan

The Orange County General Plan contains goals, policies, and plans that are intended to guide development decisions in relationship to identified physical hazards in the planning area. The Orange County General Plan includes a Safety Element that contains the following goals and policies that are related to seismicity and geologic hazard:

Public Safety Goal 2: Minimize the effects of public safety hazards through implementation of appropriate regulations and standards which maximize protection of life and property.

Objective 2.1: To create and maintain plans and programs which mitigate the effects of public safety hazards.

Objective 2.2: To encourage the development and utilization of technologies that minimize the effects of public safety hazards.

Seismic Safety and Geologic Hazards, Policy 5: To encourage establishment of seismic design criteria and standards for county facilities (e.g., transmission lines, water and sewage systems, and highways), any structures housing necessary mobile units and support equipment, and other vital resources which would be needed following an earthquake (e.g., "backup" power generation facilities and water storage).

3.6.3 Impacts and Mitigation Measures

Significance Criteria

In accordance with Appendix G of the CEQA Guidelines, a geologic or seismic impact is considered significant if it 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; 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 onsite or offsite landslide, lateral spreading, subsidence (i.e., settlement), 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;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Impacts Discussion

Surface Fault Rupture

The Alquist-Priolo Earthquake Fault Zoning Act, signed into law in December of 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development and prohibit construction on or near active fault traces to reduce hazards associated with fault rupture. The Alquist-Priolo Earthquake Fault Zones are the regulatory zones that include surface traces of active faults (CDC, 2010). There are no known Alquist-Priolo fault zones in the vicinity of the proposed project components (Hart, 1997). Therefore, the proposed project would not adversely affect people or structures due to fault rupture. There would be no impact.

Septic Tanks

The proposed project would not involve the use of septic tanks. There would be no impact.

Mineral Resources

The proposed project areas are not classified by the City of Lake Forest General Plan (1994), Orange General Plan (2009), or Orange County General Plan (2005) as having significant mineral deposits and are not located near an important mineral resource recovery site. Implementation of the proposed project would not result in the loss of availability of an important mineral resource or mineral resource recovery site. There would be no impact.

Ground Shaking and Seismic Hazards

Impact 3.6-1: Implementation of the proposed project could expose people and structures to strong seismic ground shaking, seismic related ground failure, and landslides. (Less than Significant)

The proposed project is located in a seismically active area that has the potential to experience strong ground shaking, seismic-related liquefaction, and landslides. The closest faults to the proposed Baker site, treated water pipeline, and sewer pipeline in the City of Lake Forest are the Newport-Inglewood and Elsinore Faults, which are located approximately seven miles and fourteen miles from the site, respectively. Other regional faults include the offshore Palos Verdes fault, the Whittier fault, and the San Jacinto fault. The Newport-Inglewood fault is considered an active fault and thus requires special near-source factors to be incorporated into buildings developed within 10 kilometers of the fault. A major earthquake associated with any of these faults could result in moderate to severe groundshaking in the project area and would be a potential hazard to the proposed project. Damage to buildings and infrastructure associated with

the proposed project, both above and belowground, could be expected as a result of groundshaking during a seismic event.

The Raw Water Pump Station is located in the City of Orange, which is traversed by two minor faults, the Peralta Hills Fault and the El Modena Fault, which are located approximately one-mile west and two-miles west of the site, respectively. Displacements along these two faults are smaller than more prominent regional faults, such as the Elsinore Fault located approximately seven miles from the site. The maximum probable earthquake magnitudes would be much less than those along regional faults. The OC-33 site is located approximately 1.5 miles north of the Raw Water Pump Station and also in close proximity to these faults.

The California Building Code (CBC) (CCR Title 24) provides engineering design criteria for grading, foundations, retaining walls, and structures within zones of seismic activity. The procedures and design limitations for the design of structures are based on site characteristics, occupancy type, configuration, structural system height, and calculated seismic design criteria. Seismic design criteria consider site specific data including distance to active faults, soil types, and seismic coefficients that are based on anticipated maximum seismic events. The proposed project components would be designed to include all technical specifications required by the seismic safety codes according to the CBC; as a result, compliance with CCR Title 24 would minimize impacts due to seismic ground shaking, landslides, and liquefaction. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Soil Erosion

Impact 3.6-2: Implementation of the proposed project could result in substantial soil erosion or loss of topsoil. (Less than Significant with Mitigation)

Soil removal from grading, trenching and excavation activities for all components of the proposed project would reduce soil cohesion. Excavated soils would be stockpiled and potentially exposed to erosive forces such as wind and water. Furthermore, excavation or grading also would expose base soils to erosion by wind or water. As required by state law, a Storm Water Pollution Prevention Plan (SWPPP) would be a requirement of project approval. In compliance with the statewide NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit) (Order No. 99-08-DWQ), a SWPPP would be prepared, including an Erosion Control Plan to minimize soil erosion during construction and would prevent soil from washing off the construction site into storm drains, Serrano Creek, Santiago Creek, and other natural habitats. Implementation of Mitigation Measure GEO-1 would ensure best management practices for soil erosion and sediment control measures are included in the SWPPP.

Design of the proposed Baker WTP and Raw Water Pump Station would include resurfacing the disturbed area with paved asphalt, which would reduce erosion. As a result, operation of these facilities would not result in erosion or loss of topsoil. To ensure the proposed pipelines would not cause erosion or loss of topsoil, post-construction site restoration is required. Implementation of Mitigation Measure AES-2, which requires a post-construction restoration and revegetation plan, would reduce impacts to a less-than-significant level.

Mitigation Measures

GEO-1: IRWD shall require the construction contractor to include best management practices (BMPs) in the Storm Water Pollution Prevention Plan for the project, to minimize soil erosion and sedimentation from the project sites, including but not limited to the following: use of sediment barriers and traps, silt basins, and silt fences.

Implement **Mitigation Measure AES-2.**

Significance after Mitigation: Less than significant.

Unstable Soil, Liquefaction, Landslide

Impact 3.6-3: The proposed project may 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 on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse. (Less than Significant with Mitigation)

None of the project components are located in an area that is considered susceptible to landslides. The City of Lake Forest planning area is considered to have a low potential for liquefaction and subsidence (City of Lake Forest, 1994). According to the CDC, the Baker site, treated water pipeline, Raw Water Pump Station, and OC-33 site would not be located in a liquefaction zone. However, the proposed sewer pipeline would be located in a liquefaction hazard area. Implementation of Mitigation Measure GEO-2 would require pre-construction geotechnical assessments to address liquefaction potential and to determine the site-specific design criteria to mitigate potential risks due to liquefaction. Furthermore, all of the proposed project facilities would be designed and constructed in compliance with the CBC (CCR Title 24) to minimize impacts due to landslides, liquefaction, and subsidence.

The upper area of the Baker site has a gradual slope of approximately 60 feet to the south and west, with the toe of the slope bordering residential properties. The Baker WTP facilities would be built in accordance with the required CBC slope setback requirements to eliminate the risk for slope failure. Construction of the Baker WTP facilities also would be required to comply with federal and state regulations to reinforce cut slopes and excavated areas to ensure stability. The use of sheet piling, shoring, bracing or other provisions would be recommended as a result of the

geotechnical assessment required by Mitigation Measure GEO-2. As a result, impacts associated liquefaction and other geological hazards would be less than significant with mitigation.

Mitigation Measures

GEO-2: Prior to approval of construction plans for the proposed project, a design-level geotechnical investigation, including collection of site-specific subsurface data shall be completed by IRWD for all project components. The geotechnical investigation shall be conducted by a certified engineering geologist or registered geotechnical engineer. The geotechnical investigation shall identify appropriate engineering considerations, including density profiles, approximate maximum shallow groundwater level, vertical and lateral extent of the saturated sand/silt layers that could undergo liquefaction, and potential presence of expansive soils. The geotechnical investigation shall recommend site-specific design criteria to mitigate potential risks due to liquefaction, landslides, subsidence, and expansive soils. Recommended design criteria shall be in accordance with SP 117 where appropriate (e.g., sewer pipeline) and become part of the proposed project.

Significance after Mitigation: Less than significant.

Expansive Soil

Impact 3.6-4: The proposed project may be located on expansive soils. (Less than Significant with Mitigation)

Soils with shrink-swell or expansive properties typically occur in fine-grained clay sediments and cause damage through volume changes as a result of a wetting and drying process. Structural damage may occur over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

Implementation of Mitigation Measure GEO-2 would require pre-construction geotechnical assessments to determine whether expansive soils exist in and around each project component and to determine the site-specific design criteria to mitigate potential risks due to expansive soils, such as soil replacement or conditioning. In addition, all project facilities would be designed and constructed in compliance with the CBC (CCR Title 24) to minimize impacts due to expansive soils. Impacts would be less than significant with mitigation

Mitigation Measures

Implement **Mitigation Measure GEO-2.**

Significance after Mitigation: Less than significant.

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3.7 Hazards and Hazardous Materials

This section assesses potential impacts that could arise as a result of the proposed project associated with hazardous materials use, discovery of hazardous materials in the subsurface, and hazards associated with wildfires and airports. Section 25501(o) of the California Health and Safety Code defines "hazardous material" as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

3.7.1 Environmental Setting

Regional Setting

Hazardous materials are used throughout the cities of Lake Forest and Orange for a variety of purposes. These include manufacturing, service industries, small businesses, agriculture, medical clinics, schools and households.

Areas of Fire Hazard

The open space north of Portola Parkway between Portola Hills and Foothill Ranch, the Whiting Ranch Wilderness Area, and a small portion of open space extending south to Portola Parkway northwest of the Foothill Ranch community have been identified in the Lake Forest General Plan Safety and Noise Element as areas of fire hazard (City of Lake Forest, 1994). The proposed Baker site is not in an area of fire hazards.

In the Orange General Plan Public Safety Element, wildland fire hazard areas are identified primarily along the developed residential fringe of hillsides that represents the wildland-urban interface (City of Orange, 2009). The proposed Raw Water Pump Station is located in a Wildland Very High Fire Hazard Area, as delineated on the City of Orange's Environmental and Natural Hazard Policy Area (City of Orange, 2009). The OC-33 site is also located in a Very High Fire Hazard Area, as delineated in the City of Orange's Environmental and Natural Hazard Policy Area (City of Orange, 2009) and the County of Orange's General Plan Land Use Element (2005). The surrounding undeveloped hillside areas are characterized by coastal sage scrub, oak woodlands, and other vegetation types that are highly prone wildland fires (City of Orange, 2009).

Abandoned Landfills

The City of Orange contains several abandoned and closed landfills, which contain wastes that can release toxins into both the air and groundwater, as well as former landfills at La Veta and Grijalva parks. The three abandoned landfills are located at Chapman Avenue and Yorba Street

(the current site of Yorba Park), Lincoln Avenue and Glassell Street, and near Cannon Street and Serrano Avenue to the west of the City of Villa Park. Two closed landfills are located at Santiago Canyon Road to the west of Villa Park (the former Santiago Canyon Landfill) and in the hillside area west of Irvine Lake (City of Orange, 2009).

Orange County Oil Field

The County of Orange oil fields are located in the City of Lake Forest. According to the State Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR), four abandoned dry wells are located within the City boundaries.

Transportation of Hazardous Materials

Orange County contains a transportation network consisting of highways, pipelines, air, rail and water systems that transport hazardous materials throughout the region. The State Department of Transportation regulates the transport of hazardous materials through the City of Lake Forest and Orange and has designated I-5 and SR-241 as the transportation routes for hazardous materials. Further, the California Highway Patrol has designated I-5, I-405, SR-57, and SR-91 as hazardous materials corridors (City of Lake Forest, 2006).

Project Area Setting

Contaminated Soils

A database search was conducted to identify the hazardous materials / waste sites present in the project vicinity. The purpose of this inquiry was to determine whether the location of proposed project components would coincide with areas of contaminated soils. Potential contaminated sites in the project vicinity were identified with a review of the following databases:

- Leaking Underground Storage Tank (LUST) databases: Identifies potential sources of soil contamination by petroleum hydrocarbons and petroleum related volatile organic compounds (VOCs) (SWRCB, 2010).
- Envirostor databases: The California Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites (DTSC, 2010).

- Cortese databases: Hazardous Waste & Substances Sites. List of sites designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).
- Solid Waste Landfill (SWLF) and Toxic Pits databases: for potential sources of soil contamination associated with solid waste landfills, including petroleum constituents, VOCs, and metals (CalEPA, 2010).

The review of the database report indicates that no sites qualified as a potential source of soil contamination within a quarter mile of the proposed project elements. For purpose of this review, sites are considered relevant if they appear on the LUST database and the case remains open or undefined, if they appear on the Envirostor database, or if they appear on the SWLF or Cortese databases.

Hazardous Materials

Preliminary hazardous materials assessments for the Baker site and Raw Water Pump Station site have indicated the presence of lead-based paint and asbestos-containing materials (ACM) in existing structures to be demolished as a result of the proposed project (Panacea, Inc., 2010a, 2010b).

Lead-based paint is defined and regulated by various federal and state agencies, including the U.S. Consumer Product Safety Commission (CPSC), U.S. Department of Housing and Urban Development (HUD), and the California Department of Public Health (DPH) (CCR Title 17, Section 35033). As part of construction waste, lead-based paint can be considered hazardous waste (CCR Title 22, Section 66261.24). Demolition activities also can result in exposure of construction workers to airborne lead particles that can be hazardous at certain concentrations.

Asbestos is a known carcinogen, and inhalation of asbestos may result in the development of lung cancer or mesothelioma. When a material contains asbestos in concentrations greater than one percent, it is considered an asbestos-containing material (ACM) (CCR Title 8, Section 1529; DOSH, 1996). When an ACM is present in areas that workers/employees perform work, notification and training are required by Cal OSHA (DOSH, 1996). ACM are present at the Baker site and Raw Water Pump Station site in some pipes, gaskets, and roofing materials. However, the ACM is not considered to be “friable” and therefore is not considered to be hazardous waste.

Chemical Usage and Delivery

Operation of the proposed Baker WTP would involve onsite chemical use and storage. Chemicals would be stored in the proposed dedicated chemical storage building with secondary containment areas to confine accidental spills and prevent exposure to the environment. An inventory of chemicals that would be stored and used at the Baker WTP is provided in **Table 3.7-1** below. Brief descriptions of each chemical are also provided below. Chemical delivery trucks would access the Baker WTP via Biscayne Bay Drive or via Palmwood and Wisteria, depending on the size, width, and turning radius requirements of the vehicles. Planned future development on the vacant land north of the Baker site would include construction of new roadways. When and if

**TABLE 3.7-1
 BAKER WTP CHEMICAL INVENTORY – CHEMICAL STORAGE BUILDING**

Chemical	CAS No.	Storage (gallons)^a	Delivery Frequency (truck trips)
Aqua Ammonia	1336-21-6	10,000	1 every 2 months
Sodium Chlorite	7758-19-2	6,900	1 per month
Chlorine Dioxide	10049-04-4	2,000	None (generated onsite)
Sodium Hydroxide (Caustic Soda)	1310-73-2	13,800	1 per week
Ferric Chloride ^b	7705-08-0	16,000	1 per week
Hydrochloric Acid	7647-01-0	8,000	1 every 2 months
Citric Acid	77-92-9	6,900	1 every 2 months
Sodium Bisulfite	7631-90-5	6,300	1 every 2 months
Sodium Hypochlorite	7681-52-9	16,000	1 every 5 days

a Chemical storage based on 28 mgd treatment capacity and projected average chemical dose.
 b Ferric chloride or another similar coagulant would be used.

SOURCE: RBF/Carollo, 2010.

such development is completed, instead of Biscayne Bay Drive, vehicles would access the Baker site via Commercentre Drive, Indian Ocean Drive, and a new access road (see Figure 2-5).

Aqua Ammonia

Aqua Ammonia is a corrosive liquid that may be fatal if swallowed. MSDS defines a corrosive material as a highly reactive substance that can cause damage to living tissue; corrosive materials behave directly by chemically destroying an object or indirectly by causing inflammation (MSDS, 2008). Its vapor is toxic and irritating to eyes, nose, throat, and skin. The vapor is highly flammable under limited conditions. Aqua ammonia may cause caustic injury; a caustic injury is a substance that is capable of burning and destroying living tissue. The severity of injury depends upon the concentration (MSDS, 2008). Aqua ammonia is stored at an ambient temperature in a dry ventilated area.

Sodium Chlorite

Sodium Chlorite is a hazardous solid in the case of skin contact (irritant), eye contact (irritant), and ingestion or inhalation. Prolonged expose on the skin may result in skin burns and ulcerations and over-exposure by inhalation can result in death. Sodium Chlorite is not a flammable material. In case of a spill it is recommended to keep the substance damp by using water spray. The substance is stored in a dry tight container in a cool, well-ventilated place (MSDS, 2008).

Chlorine Dioxide

Chlorine Dioxide is a gas that is harmful if swallowed or inhaled and is corrosive to the skin and eyes. Chlorine Dioxide should be stored in a cool, dry environment. In case of a spill, the contaminated area should be isolated and ventilated; to remove the gas, water is sprayed and spilled liquid is contained with sand or earth (MSDS, 2008). Chlorine Dioxide does not present a fire or explosion hazard and is stable under ambient conditions.

Sodium Hydroxide (Caustic Soda)

Sodium Hydroxide is a highly hazardous liquid that if inhaled or contact with the skin occurs, can cause irritation or possibly severe chemical burns; if eye contact occurs it may cause irritation or severe eye damage, and if ingested the substance can cause chemical burns, nausea, or vomiting (MSDS, 2008). The substance is stable at ambient temperatures. Sodium Hydroxide is stored in a cool, dry ventilated area away from heat and moisture. In the incident of a spill, the spill should be contained in order to prevent contamination of ground water or surface water (MSDS, 2008). Sodium Hydroxide does not present a fire or explosive hazard.

Ferric Chloride

Ferric Chloride is a highly corrosive solid that if ingested is hazardous, if contact with skin or eyes occurs the substance can cause severe blistering or blindness, respectively. The substance is highly toxic to the lungs. In the incident of a small spill, the spilled solid is contained in an appropriate waste disposal container or it can be neutralized with a dilute solution of sodium carbonate, and during a large spill, the corrosive solid must be sprayed with water to reduce vapors (MSDS, 2008). Ferric Chloride is not a flammable substance.

Hydrochloric Acid

Hydrochloric Acid is an extremely corrosive liquid that if contact with skin or eyes occurs can cause serious damage such as itching, scaling, reddening, and blistering. If inhaled, the substance may cause severe irritation to the respiratory tract. Hydrochloric Acid is stored in a tightly closed container in a cool, well-ventilated area. During a small spill, the substance is diluted with water and mopped up or absorbed with a dry material, such as dry earth or sand (MSDS, 2008). Hydrochloric Acid is not flammable; however it poses a fire and explosive hazard in the presence of certain metals such as alkali, copper and alloys (MSDS, 2008).

Citric Acid

Citric Acid is a corrosive solid that if contact with skin or eyes occurs can cause severe tissue damage; eye contact can result in corneal damage or blindness and skin contact can produce inflammation and blistering (MSDS, 2008). Inhalation can cause lung irritation or produce lung damage. Citric Acid is stored in a tightly closed container in a cool, well-ventilated area. During a small spill, the material is disposed in a container and the contaminated surface is spread with water (MSDS, 2008). Citric Acid is highly combustible at high temperatures and slightly flammable in the presence of heat.

Sodium Bisulfite

Sodium Bisulfite is a hazardous solid that can cause skin and eye irritations. The substance can cause lung damage if prolonged exposure occurs. Sodium Bisulfite is stored in a tightly closed container in a cool, well ventilated area. During a small spill, the solid is contained in waste disposal container and the contaminated surface is spread with water (MSDS, 2008). Sodium Bisulfite does not present a fire hazard and is non-flammable; it poses an explosive risk in the presence of mechanical impact or the presence of static discharge (MSDS, 2008).

Sodium Hypochlorite

Sodium Hypochlorite is a hazardous liquid that can cause skin and eye irritation; skin contact would result in skin burns and eye contact would result in tissue damage. Inhalation would cause severe irritation to the respiratory tract. Sodium Hypochlorite is stored in a tightly closed container in a cool, well-ventilated area. During a small spill, the substance is diluted with water and mopped up or absorbed with a dry material, such as dry earth or sand. Sodium Hypochlorite is a non-flammable substance; it poses a fire hazard in the presence of various substances such as combustible materials, metals, and organic materials; and is slightly explosive in the presence of open flames (MSDS, 2008).

3.7.2 Regulatory Framework

Federal

Occupational Safety and Health Administration

The federal Occupational Safety and Health Administration (OSHA) enforces regulations covering the handling of hazardous materials in the workplace. The regulations established in the Code of Federal Regulations (CFR) Title 29 are designed to protect workers from hazards associated with encountering hazardous materials at the work site, including lead-containing waste. The regulations require certain training, operating procedures, and protective equipment to be used at work sites that could encounter hazardous materials.

Resource Conservation and Recovery Act

Under the federal Resource Conservation and Recovery Act (RCRA), individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements and is approved by the U.S. Environmental Protection Agency (USEPA). The USEPA approved California's RCRA program, called the Hazardous Waste Control Law (HWCL), in 1992. The California Environmental Protection Agency (Cal EPA) and the DTSC, a department within Cal EPA, regulate the generation, transportation, treatment, storage, and disposal of hazardous waste. DTSC has primary regulatory responsibility for hazardous materials, but can delegate enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the HWCL.

Toxic Substance Control Act

The Toxic Substances Control Act (TSCA) of 1976 was enacted by Congress to give the USEPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. The USEPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. The USEPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

CERCLA

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) was developed to protect the water, air, and land resources from the risk created by past chemical disposal practices. This act is also referred to as the Superfund Act, and the sites listed under it are referred to as Superfund sites. Under CERCLA, the USEPA maintains a list, known as CERCLIS, of all contaminated sites in the nation that have in part or are currently undergoing clean-up activities. CERCLIS contains information on current hazardous waste sites, potential hazardous waste sites, and remedial activities. This includes sites that are on the National Priorities List (NPL) or being considered for the NPL.

State

California Code of Regulations

The California Code of Regulations (CCR), Title 22, Section 66261.20-24 contains technical descriptions of characteristics that would classify wasted material, including soil, as hazardous waste. When excavated, soils having concentrations of contaminants higher than certain acceptable levels must be handled and disposed as hazardous waste. When demolished, structural features containing lead-based paint also can be considered hazardous waste, depending on concentrations, and must be handled and disposed as hazardous waste.

California Hazardous Materials Release Response Plans and Inventory Law

The California Hazardous Materials Release Response Plan and Inventory Law of 1985 (Business Plan Act) requires that businesses that store hazardous materials on site prepare a Hazardous Materials Business Plan and submit it to local health and fire departments. The business plan must include details of the facility and business conducted at the site, an inventory of hazardous materials that are handled and stored onsite, an Emergency Response Plan, and a Site Safety Plan that includes an emergency response training program for new employees with an annual refresher course.

California Occupational Safety and Health Administration

In California, the California Occupational Safety and Health Administration (Cal OSHA) regulates worker safety similarly to the federal OSHA. OSHA has developed worker safety regulations for the safe abatement of lead-based paint and primers (Lead in Construction Standard, CCR Title 8, Section 1532.1). OSHA also has developed regulations for notification of employees and workers when asbestos containing materials are present in the workplace (Construction Safety Order, CCR Title 8, Section 1529).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In January 1996, Cal EPA adopted regulations, which implemented a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: (1) hazardous waste generators and hazardous waste onsite treatment; (2) underground storage tanks (USTs); (3) aboveground storage tanks (ASTs); (4) hazardous materials release response plans and inventories; (5) risk management and prevention programs; and (6) Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level and the agency responsible for implementation of the Unified Program is called the Certified Unified Program Agency (CUPA). In Orange County, the Environmental Health Division is the designated CUPA.

Department of Toxic Substance Control

The DTSC is responsible for regulating the use, storage, transport, and disposal of hazardous substances in the state. DTSC maintains a Hazardous Waste and Substances Site List for site cleanup. This list is commonly referred to as the Cortese List. Government Code section 65962.5 requires the Cal-EPA to update the Cortese List at least annually. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

DTSC considers ACM to be hazardous waste only if it is “friable” and contains one percent or more of asbestos (DTSC, 2009). A friable waste is one that can be reduced to dust or powder under hand pressure when dry. Although there are ACMs onsite within existing structures at the Baker site and Raw Water Pump Station site, none of the ACMs have been determined to be friable and therefore are not considered to be hazardous waste (Panacea, 2010b).

California Accidental Release Prevention Program

The California Accidental Release Prevention (CalARP) Program regulates facilities that use or store regulated substances, such as toxic or flammable chemicals, in quantities that exceed established thresholds (California Code of Regulations (CCR) Title 19, Division 2, Chapter 4.5). The purpose of the CalARP program is to prevent accidental releases of regulated substances and reduce the severity of releases that do occur. The CalARP Program meets all requirements of the U.S. Environmental Protection Agency’s (USEPA) Risk Management Program, established pursuant to the Clean Air Act Amendments (42 USCA Section 7412(4)). The CalARP Program requires facilities that use regulated substances to develop a Risk Management Plan (RMP).

The County of Orange Environmental Health Division administers the CalARP Program in the City of Orange (City of Orange, 2009). The Orange County Fire Authority administers the CalARP Program in the City of Lake Forest (OCFA, 2009).

Local

Lake Forest General Plan, Safety and Noise Element

Operation of the proposed Baker WTP would result in the transportation, storage, and use of hazardous materials in the City of Lake Forest at the Baker site. The Lake Forest Safety and Noise Element states that the City will work to minimize the accident and health risk from hazardous materials with the following approaches:

- Cooperate with federal, state and local agencies to effectively regulate the management of hazardous materials and hazardous waste;
- Cooperate with the County of Orange to implement applicable portions of the County Hazardous Waste Management Plan;
- Establish defined roadway transportation routes for the conveyance of hazardous materials (the City does not exercise jurisdiction over transportation of freight along railroad right-of-way);
- Develop an emergency response plan for accidents involving hazardous materials.

3.7.3 Impacts and Mitigation Measures

Significance Criteria

In accordance with Appendix G of the *CEQA Guidelines*, the proposed project would result in potentially significant impacts if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Result in hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within a quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- Be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project area;
- Be located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; 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.

Title 40 of the Code of Federal Regulations (40 CFR) and Title 22 of the California Code of Regulations define and identify hazardous materials and wastes and provide threshold levels for these substances. Regulatory agencies determine what constitutes a “substantial” hazard or an “insignificant” level of hazardous materials on a case-by-case basis, depending on the proposed uses, potential exposure, and degree and type of hazard.

Impacts Discussion

The following is a discussion of the potential effects of the proposed project to Hazards and Hazardous Materials according to the key issue areas identified in Appendix G of the *CEQA Guidelines*.

Schools

Construction of the proposed project would require the use of fuels, oils, and lubricants that can be hazardous to the environment. In addition, the operation of the proposed Baker WTP would involve onsite chemical use and storage. Three schools are located near the Baker site and proposed pipelines: Lake Forest Montessori School is located approximately one-half mile south; Fullbright Montessori Academy is located approximately one-half mile north; and Rancho Canada Elementary School is located approximately one mile southwest. Chapman Hills Elementary school is located approximately one mile from the proposed Raw Water Pump Station and 1.5 miles from the OC-33 site. Santiago Canyon College is over one mile from OC-33. All nearby schools are over one-quarter mile from the proposed project sites; therefore, there would be no impact.

Hazardous Materials Sites

Government Code Section 65962.5 requires the Cal EPA to develop and annually update the Hazardous Waste and Substances Sites (Cortese) List. The Cortese List is a planning document used by state and local agencies to comply with CEQA requirements in providing information about the location of hazardous materials release sites. The information contained in the Cortese List is provided by Cal EPA’s DTSC and other state and local government agencies.

The proposed Baker WTP, treated water conveyance pipeline, sewer pipeline, Raw Water Pump Station and OC-33 Meter Exchange are not located on sites listed on the Cortese List for Orange County (DTSC, 2010). The DTSC Envirostor Database was searched in March 2010 for hazardous material sites within the cities of Lake Forest and Orange (DTSC, 2010) and in November 2010 for sites near OC-33 in unincorporated Orange County. The Database did not identify any hazardous material sites within the City of Lake Forest. The nearest hazardous materials site to the Baker site and proposed pipelines is the Marine Corps Air Station (MCAS) El Toro, which has been designated as a federal Superfund Site. The Baker site and proposed pipelines would be located approximately two miles southeast of MCAS El Toro. The nearest

hazardous materials site to the Raw Water Pump Station is the Southern California Gas/Orange Voluntary Cleanup Site. The proposed pump station would be located approximately seven miles east of the site. The nearest hazardous materials site to OC-33 is located at Irvine Regional Park in the City of Irvine. The site was a Formerly Used Defense Sites (FUDS) that involved the investigation or remediation, either in lead or support capacity (DSTC, 2010). The cleanup status is active and the DSTC is the oversight agency conducting the site cleanup. The proposed meter exchange and pipeline replacement would be located approximately 0.41 miles north of the site. The proposed project would not be located on a hazardous material site and would not create a significant hazard to the public or the environment. There would be no impact.

Public Airport or Private Airstrip

The proposed project would not be located within an airport influence area or any other airport safety zones. The proposed project would be located approximately two miles southeast of the MCAS El Toro. However, the air station was decommissioned on July 2, 1999 (DTSC, 2010). The proposed project would be located approximately 12 miles east of John Wayne Airport. Therefore, construction and operation of the proposed project would not result in an airport related safety hazard. There would be no impact.

Transport, Use, Disposal and Release of Hazardous Materials

Impact 3.7-1: The proposed project could create a significant hazard to the public or the environment through routine transport, use or disposal of hazardous materials that may result in accident conditions involving the release of hazardous materials into the environment. (Less than Significant with Mitigation)

Operational Impacts

The CalARP Program requires facilities that use regulated substances to develop a Risk Management Plan (RMP). IRWD would be required to prepare a RMP for the Baker WTP and to keep the RMP on file with the Orange County Fire Authority and USEPA. The RMP is a public document that reflects a facility's overall effort to manage and prevent risks associated with the storage, use, and/or processing of regulated substances. The regulated substances that would be stored and/or used onsite at the Baker WTP are listed in Table 3.7-1. These regulated substances would be housed in the Chemical Storage Building (Figure 2-4) with secondary containment areas to confine accidental spills and prevent exposure to the environment.

The California Hazardous Materials Release Response Plans and Inventory Program (CCR Title 19, Division 2, Chapter 4) requires facilities that store hazardous materials onsite to prepare a Hazardous Materials Business Plan (HMBP) that includes an inventory of hazardous substances and an Emergency Response Plan (ERP). The HMBP is submitted to local health and fire departments. In the event of an accident, the release of hazardous materials must be immediately reported to local fire and emergency personnel and appropriate county and state agencies.

Operation of the Baker WTP would require delivery of the chemicals listed in Table 3.7-1, resulting in up to 20 truck trips per month. The transport of hazardous materials is regulated by

Caltrans. Transporters of hazardous waste are required to be certified by Caltrans. All hazardous materials delivered to the Baker WTP would be tracked by Caltrans and delivery vehicles would be required to utilize roadways approved for transportation of hazardous materials. Caltrans has designated I-5 and SR-241 as transportation routes for hazardous materials in the vicinity of the Baker site. The City of Lake Forest does not have assigned roadways for transportation of hazardous materials. Chemical delivery vehicles would access the Baker site using either I-5 or SR-241 and local roadways such as: Bake Parkway, Commercentre Drive, Lake Forest Drive, and Trabuco Road. Delivery vehicles would access the Baker site using either Biscayne Bay Drive or Peachwood, Palmwood, Wisteria. If the site directly north of the proposed Baker WTP is developed (City of Lake Forest Opportunities Study, Site #3) and associated new roadways are built, then chemical delivery vehicles also would access the Baker site using Indian Ocean Road (see Figure 2-5 in the Project Description). The proposed project would not create a significant hazard to the public due to the transport of hazardous materials.

Implementation of the RMP, HMBP, and ERP would reduce potential risks to the public, environment, and sensitive receptors through transport, use, or accidental release of hazardous materials at the Baker WTP to less than significant levels. Therefore, the risk of injury to the public or environment due to hazard material transport or use would be less than significant.

Construction Impacts

Demolition and site preparation activities at the Baker site and Raw Water Pump Station site would involve demolition of existing structures that contain lead-based paint and asbestos-containing materials (ACM). IRWD would be required to comply with all federal and state regulations pertaining to worker protection against exposure to such hazardous materials, including Cal OSHA regulations. In addition, IRWD would be required to comply with all federal and state regulations pertaining to abatement or disposal of hazardous materials and wastes to protect public health and the environment. If necessary to protect worker health and safety, ACM would be removed prior to demolition of structures. No mitigation measures are necessary; impacts would be considered less than significant.

Project construction would involve use of chemicals and solvents such as fuel and lubricating grease for motorized heavy equipment. Inadvertent spills or releases of such hazardous materials into the environment could occur. As explained in Section 3.8 Hydrology and Water Quality, IRWD would be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project to protect water quality and prevent polluted runoff from leaving the project construction sites. The SWPPP would include BMPs for proper handling of chemicals, such as avoiding fueling at the construction site, avoiding overtopping during fueling, and installing containment pans. Implementation of Mitigation Measure HAZ-1 would ensure such BMPs are included as part of the SWPPP and would ensure proper handling of hazardous materials to reduce impacts associated with accidental release to less than significant levels.

Mitigation Measures

HAZ-1: IRWD shall require the construction contractor to include the following BMPs in the SWPPP that would prevent the accidental release of hazardous materials. The plan shall include, but not be limited to, the following BMPS:

- Follow manufacturers' recommendations and regulatory requirements for use, storage, and disposal of chemical products and hazardous materials used in construction.
- During routine maintenance of construction equipment, properly contain and remove grease and oils.
- Properly dispose of discarded containers of fuels and other chemicals.
- In the event of a petroleum product spill, the contractor shall contain the spill and clean up the contaminated area in compliance with regulations with DTSC and RWQCB approval. Contaminated soils shall be removed and disposed of in accordance with applicable regulations.

Significance after Mitigation: Less than significant.

Emergency Response Plan

Impact 3.7-2: The proposed project could impair the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. (Less than Significant with Mitigation)

Construction of the proposed project would not directly affect surrounding roadways. Active construction activities and staging would occur onsite at the Baker site, along the Serrano Creek Trail, through open space, at the existing Intertie facility, and at OC-33. No roadway or lane closures would occur and thus would not interfere with any emergency response plans. However, the delivery of construction materials and equipment could impede access for emergency response vehicles. The cities of Lake Forest and Orange each have an Emergency Preparedness Plan that establishes coordinated action plans for emergency situations. The closest fire station to the Baker WTP is two miles away, located at 23022 El Toro Road in Lake Forest. The closest fire station to the Raw Water Pump Station is one mile away, located at 7401 E. Fort Road in Orange. This fire station is also just over one mile away from OC-33. Implementation of Mitigation Measure TR-1, requiring a traffic control plan, and Mitigation Measure TR-3, requiring coordination with emergency service providers, would reduce impacts to emergency response and access associated with construction traffic to a less than significant level. (See Section 3.12 Traffic and Transportation for Mitigation Measures TR-1 and TR-3.)

Mitigation Measures

Implement **Mitigation Measures TR-1** and **TR-3**.

Significance after Mitigation: Less than significant.

Wildland Fires

Impact 3.7-3: The proposed project could expose people and structures to a significant risk or loss, injury or death to wildland fires. (Less than Significant with Mitigation)

The City of Lake Forest is subject to both wild and urban fires as its eastern portion is contiguous with the Cleveland National Forest. However, the proposed project area in the vicinity of the Baker site is not identified by the Lake Forest General Plan as having a high fire hazard rating (City of Lake Forest, 1994).

Portions of the City of Orange are subject to both wild and urban fires. The proposed Raw Water Pump Station would be located in an area that is identified by the Orange General Plan as having a very high fire hazard rating. The proposed project would be required to comply with the Orange Fire Department's enforced fuel modification zones. In addition, OC-33 is in an area identified by Orange County as a very high fire hazard zone. Implementation of Mitigation Measure HAZ-2 would reduce potential impacts to people and structures due to wildfires to a less than significant level by requiring implementation of best management practices during construction to minimize the potential for fires to start or to spread.

Mitigation Measures

HAZ-2: IRWD shall require the construction contractor to implement the following best management practices during construction of the Raw Water Pump Station and OC-33 Meter Exchange to prevent wildland fires.

- During construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other flammable material.
- Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order.
- All vehicles and crews working at the project site shall have access to functional fire extinguishers at all times.
- Construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.

Significance after Mitigation: Less than significant.

References – Hazards and Hazardous Materials

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- Panacea, Inc., *Asbestos Survey for Two Irvine Ranch Water District Properties*, September 3, 2010b.
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3.8 Hydrology and Water Quality

This section describes local surface water and groundwater resources and discusses regional water quality issues. This section also evaluates the proposed project's potential impacts on water resources in the project area.

3.8.1 Environmental Setting

Regional Setting

The proposed project is located in the coastal area of Orange County in southern California. This region is characterized by warm summers, cool winters, and highly seasonal rainfall. The lower reaches of rivers in the region are generally dry in the summer under natural conditions, as potential evapotranspiration exceeds precipitation. Mean precipitation in the project vicinity is approximately 15 inches per year with 87 percent occurring within November through March (City of Lake Forest, 2008).

The City of Lake Forest is located within the San Diego Creek and Aliso Creek watersheds (OC Watersheds, 2005). The Aliso Creek Watershed covers 30.4 square miles and the San Diego Creek Watershed covers 112.2 square miles. The Aliso Creek watershed's main drainage is Aliso Creek with smaller tributaries feeding into it that include Wood Canyon, Sulphur Creek, the Aliso Hills Channel, and the English Channel. The San Diego Creek Watershed's main drainage is San Diego Creek which empties into Upper Newport Bay. Upper Newport Bay drains into Lower Newport Bay and then finally the Pacific Ocean. **Figure 3.8-1** identifies major surface water resources in the region.

The City of Orange is located within the Santa Ana River and Westminster Watersheds (OC Watersheds, 2005; City of Orange, 2009). The Santa Ana River Watershed covers 2,800 square miles and the Westminster Watershed covers 74.1 square miles. The Westminster watershed is located in the southwestern corner of Orange County and is mostly urbanized and lies on a within the level coastal plain. The Santa Ana River watershed's main drainage is the Santa Ana River which performs valuable flood control and groundwater recharge functions along its entire route. The Santa Ana River discharges to the Pacific Ocean in Newport Beach, north of Newport Bay.

Project Area

Surface Water

The Baker site and the proposed sewer pipeline are adjacent to Serrano Creek, a tributary to San Diego Creek. Serrano Creek flows directly into San Diego Creek, which then flows into Upper Newport Bay and the Pacific Ocean (Figure 3.8-1).



SOURCE: ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 3.8-1
Regional Surface Waters

The proposed Raw Water Pump Station, Peters Canyon Reservoir, OC-33 and Irvine Lake are physically located within the Lower Santa Ana River watershed (City of Orange, 2009). The Raw Water Pump Station is adjacent and upslope of Peters Canyon Reservoir, which is connected to Santiago Creek by Handy Creek, a minor drainage course (EDAW, 2010) (Figure 3.8-1). OC-33 is approximately 0.25 miles north of Santiago Creek, which is a tributary to the Santa Ana River. Irvine Lake, which is upstream of OC-33 on Santiago Creek, is formed by Santiago Dam, which is an earthfill structure. The dam is jointly owned by IRWD and Serrano Irrigation District. Villa Park Dam is downstream of OC-33 on Santiago Creek.

Surface Water Quality

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are “impaired” (i.e. do not meet one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load (TMDL) for the pollutant. A TMDL is the maximum amount of a pollutant that a water body can receive and still meet the water quality standards. Typically, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources.

Reaches of San Diego Creek and Newport Bay have been listed (303(d)) as impaired by bacteria, pesticides, metals, toxics, sediment, and nutrients. Primary causes of impairment identified are urban runoff and storm sewers and unknown nonpoint sources. Total Maximum Daily Loads (TMDLs) have been developed for sediment, nitrogen, phosphorous, chlropyrifos, and diazinon. TMDLs for other toxics have been developed by the U.S. Environmental Protection Agency (US EPA); however the State Water Resources Control Board (SWRCB) has not yet adopted them. Applicable water quality goals and limits are included in the Regional Basin Plan.

Table 3.8-1 summarizes the impaired water bodies on the Santa Ana Regional Water Quality Control Board (SARWQCB) 2006 Clean Water Act Section 303(d) list near the proposed project components (SARWQCB, 2007). Serrano Creek, the closest surface water to the Baker site, is an impaired water body. Reach 1 of Santiago Creek, the closest surface water to the Raw Water Pump Station and OC-33, is not an impaired water body.

Groundwater

The Orange County Groundwater Basin is bounded on the north by the Puente and Chino Hills, on the east by Santa Ana Mountains, and on the south by the San Joaquin Hills, on the southwest by the Pacific Ocean, and on the northwest by a low topographic divide at the border of Orange and Los Angeles County. Underlying geology of the groundwater aquifer is a thick accumulation of fresh water-bearing interbedded marine and continental sand, silt and clay deposits. The proportion of fine materials increases from the mountain areas towards the coast, resulting in areas of recharge (forebay area) where materials are coarser and more interconnected, and pressure areas where materials are finer and the aquifer becomes confined. These consolidated

**TABLE 3.8-1
 IMPAIRED WATER BODIES IN THE PROJECT AREA**

Water Body/Reach Name	Pollutant/Stressor	Potential Source
Serrano Creek	Ammonia, E. Coli, pH	Unknown Source, Other Urban Runoff
Aliso Creek	Indicator Bacteria, Phosphorus, Selenium, Total Nitrogen, Toxicity	Nonpoint Source, Point Source, Unknown Point Source, Urban Runoff/Storm Sewers, Natural Sources, Unknown Sources
Newport Bay - Upper	Chlordane, Copper, DDT, Metals, PCBs, Sediment Toxicity	Unknown Sources
Peters Canyon Channel	DDT and Toxaphene	Unknown Sources
San Diego Creek Reach 2	E. Coli, Nutrients, Sedimentation/Siltation, Unknown Toxicity	Surface Runoff, Agriculture, Groundwater Loadings, Urban Runoff/Storm Sewers, Construction/Land Development, Erosion/Siltation, Unknown Nonpoint Source

SOURCE: SWRCB, 2010

rocks surround and underlie thick unconsolidated alluvial deposits. The major surface water drainage overlying this groundwater basin is Santa Ana River, the headwaters of which lies outside the basin (City of Lake Forest, 2008).

Groundwater levels in the basins have periodically declined due to gradually increasing groundwater production over the last ten years, and due to drought conditions, which have reduced the amount of local water available to refill the basin. To address these low groundwater levels and continuing seawater intrusion, the OCWD has reduced the amount of groundwater available to its water retailers and increased the cost of groundwater to pay for more imported water to recharge the basin. In addition to lowering the amount of groundwater use the OCWD is shifting the pumping in the basin inward away from the coast in order to forestall continued seawater intrusion (OCWD 2003) (City of Lake Forest, 2008).

Flooding

During the 100-year storm event, some flooding is expected along Serrano Creek, Aliso Creek, Borrego Canyon Wash, and Santiago Creek. In the vicinity of the Baker site, Serrano Creek is designated as Zone AO, which would be subject to flooding at depths of 1 to 3 feet in a 100-year storm. Generally, watercourses in the vicinity of the Baker WTP are incised and have high enough banks or have been channelized to contain most of the 100-year flood events. The additional flow from the 500-year storm results in a slight increase of flooded areas (City of Lake Forest, 2006). The OC-33 site is not within the 100-year flood zone for Santiago Creek.

3.8.2 Regulatory Framework

Federal

Clean Water Act

The Federal Water Pollution Control Act (33 U.S.C. 1251 et. sec.) as amended by the Federal Water Pollution Control Act Amendments of 1972, also known as the Clean Water Act (CWA), states that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Amendments (1987) to the CWA added a section which established a framework for regulating municipal and industrial (M&I) storm water discharges under the NPDES program. On November 16, 1990, the United States Environmental Protection Agency (USEPA) published final regulations, under the 1987 CWA Amendments, that establish application requirements for storm water permits. These regulations require that discharges of storm water from construction activity of five acres or more must be regulated as an industrial activity and covered by a NPDES permit.

NPDES Phase I

Phase I of the NPDES Program addresses ten categories of industrial activities; construction activities disturbing five acres of land or greater; and storm water runoff from “medium” and “large” municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater.

For construction activities disturbing five acres of land or greater, the SWRCB issued one statewide General Construction Activity Storm Water Permit (on August 20, 1992) to apply to all construction activities. This permit was revised and reissued on August 19, 1999 (Water Quality Order 99-08-DWQ). Landowners are responsible for obtaining and complying with this permit but may delegate specific duties to developers and contractors by mutual consent. For construction activities, the permit requires landowners, or their designated agent, to:

- Eliminate or reduce non-storm water discharges to storm water systems and other waters of the United States,
- Develop and implement a SWPPP, and
- Perform inspections of storm water control structures and pollution prevention measures.

A SWPPP prepared in compliance with the General Permit describes the site, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-storm water management controls. Dischargers are also required to inspect construction sites before and after storms to identify storm water discharge from construction activity, and to identify and implement controls where necessary.

NPDES Phase II

Phase II of the NPDES Program further protects and improves the nation's water resources from polluted storm water runoff by focusing on urban storm water runoff from additional MS4s in urbanized area and the operations of small construction sites that were not already covered by Phase I NPDES permits. On December 8, 1999 the SWRCB amended Water Quality Order 99-08-DWQ to apply to construction sites of one acre or greater, and NPDES Phase II regulations were finalized and issued by the USEPA in January 2000. The main objectives of the Phase II regulations are to reduce the amount of pollutants being discharged and protect the quality of the receiving waters.

To meet this goal, the permittee must implement a Stormwater Management Program that addresses six minimum control measures, including (1) public education and outreach; (2) public participation/involvement; (3) illicit discharge detection and elimination; (4) construction site storm water runoff control for sites greater than one acre; (5) post-construction storm water management in new development and redevelopment; and (6) pollution prevention/good housekeeping for municipal operations. These control measures will typically be addressed by developing BMPs.

Federal Emergency Management Agency

Under Executive Order 11988, the Federal Emergency Management Agency (FEMA) is responsible for the management and mapping of areas subject to flooding during a 100-year flood event (i.e., one percent chance of occurring in a given year). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year flood plain.

State

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California. This act establishes the authority of the SWRCB and the nine RWQCBs. The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and enforcement activities. The project area lies within the jurisdiction of the SARWQCB. The SARWQCB regulates discharges including storm water discharges to waters of the state through the issuance of Waste Discharge Requirements (WDRs).

SWRCB Anti-Degradation Policy

The SWRCB Resolution No. 82-16 "Statement of Policy with Respect to Maintaining High Quality Water in California" is California's implementation of the Clean Water Act (40 CFR 131.6; 131.12(a)). The SWRCB policy requires the continued maintenance of existing high quality water unless there is a demonstration that: (1) allowing some degradation is consistent with the maximum benefit to the people of the state; and (2) that such degradation would not

unreasonably affect existing or potential beneficial use. The policy requires a constituent-by-constituent comparison to determine water quality changes for the proposed project.

Santa Ana River Basin Water Quality Control Plan

The SWRCB and the SARWQCB share the responsibility, under the Porter-Cologne Act, to formulate and adopt water policies and plans and to adopt and implement measures to fulfill CWA requirements. The SARWQCB has prepared the Santa Ana River Basin Water Quality Control Plan (Basin Plan) (2008) that identifies beneficial uses for the major creeks and washes in the project area as shown in **Table 3.8-2**. **Table 3.8-3** defines the identified beneficial uses.

NPDES General Construction Permit for Storm Water Runoff

Construction activities of one acre or more are regulated by the SWRCB and are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). The SWRCB has the authority to implement the federal CWA NPDES Phase I and Phase II program. The SWRCB reissued the General Construction Permit (WQO 2009-0009-DWQ), which became effective July 1, 2010. The project applicant must submit a Notice of Intent (NOI) to the RWQCB to be covered by the General Permit prior to the beginning of construction. The General Construction Permit requires the preparation and implementation of a SWPPP. The SWPPP must be prepared before project construction begins and must include specifications for BMPs that would be implemented during construction. (BMPs are measures undertaken to control degradation of surface water by preventing soil erosion or the discharge of pollutants from the construction area). Additionally, the SWPPP must describe measures to prevent or control runoff after construction is complete and to identify procedures for inspecting, maintaining, and monitoring BMP facilities or other project elements.

The new General Construction Permit (WQO 2009-0009-DWQ) that became effective July 1, 2010 initiates a new risk-based permitting approach that considers both risk of sedimentation and risk to receiving waters due to project construction. A Risk Assessment is required that considers both parameters and assigns a risk level to each project, ranging from Risk Level 1 to Risk Level 3. The requirements for BMPs, visual monitoring, effluent monitoring, and Rain Event Action Plans, among other things, depend on a project's risk level. The new permit also details the training, education, and/or certifications required for persons responsible for conducting the Risk Assessment, preparing the NOI, preparing the SWPPP, conducting sampling and monitoring, etc.

The proposed project would affect more than one acre during construction and therefore would require preparation of a Risk Assessment, NOI, and SWPPP. Required elements of a SWPPP include:

- Site description addressing the elements and characteristics specific to the site,
- Descriptions of BMPs for erosion and sediment controls,
- BMPs for construction waste handling and disposal,
- Proposed post-construction controls, and
- Procedures for monitoring BMP performance.

**TABLE 3.8-2
 BENEFICIAL USE DESIGNATIONS FOR WATER BODIES IN THE PROJECT AREA**

Waterbody	MUN	AGR	GWR	REC I	REC II	WARM	COMM	BIOL	WILD	RARE	SPWN	MAR	SHEL	EST
Serrano Creek	+		I	I	I	I			I					
Aliso Creek	X		X	X	X	X			X	X				
Newport Bay – Upper	+			X	X		X	X	X	X	X	X	X	X
Peters Canyon Channel	+		I	I	I	I			I					
San Diego Creek, Reach 1	+			X	X	X			X					
San Diego Creek, Reach 2	+		I	I	I	I			I					
Santiago Creek, Reach 1	X		X	X	X	X			X					
Lower Santa Ana River, Reaches 1 and 2	+	X	X	X	X	X			X	X				

X = Present or potential beneficial uses
 I = Intermediate beneficial uses
 1 = Rare, endangered, or threatened wildlife may exist in or utilize some of these waterways. If the RARE beneficial use may be affected by a water quality control decision, responsibility for substantiation of the existence of rare, endangered, or threatened species on a case-by-case basis is upon the California Department of Fish and Game on its own initiative and/or at the request of the Regional Board; and such substantiation must be provided within a reasonable time frame as approved by the Regional Board.
 2 = Use, if any, to be determined on a case-by-case basis.
 + = Excerpted from municipal drinking water source (MUN) designation.

SOURCE: Santa Ana Region Basin Plan February 2008

Streambed Alteration Agreements

Sections 1601-1616 of the California Fish and Game Code apply to any state or local government agency or any public utility that proposes to *substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.*

**TABLE 3.8-3
DEFINITIONS OF BENEFICIAL USES OF SURFACE WATERS**

Beneficial Use	Description
Municipal and Domestic Supply (MUN)	Waters are used for community, military, municipal or individual water supply systems. These uses may include, but are not limited to, drinking water supply.
Agricultural Supply (AGR)	Waters are used for farming, horticulture or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.
Groundwater Recharge (GWR)	Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting saltwater intrusion into freshwater aquifers.
Preservation of Rare and Endangered Species (RARE)	Uses of waters that support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.
Water Contact Recreation (REC I)	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.
Non-Contact Water Recreation (REC II)	Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Warm Freshwater Habitat (WARM)	Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Wildlife Habitat (WILD)	Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Commercial and Sport Fishing (COMM)	Commercial and Sportfishing waters are used for commercial or recreational collection of fish or other organisms, including those collected for bait. These uses may include, but are not limited to, uses involving organisms intended for human consumption.
Preservation of Biological Habitats of Special Significance (BIOL)	Waters support designated areas or habitats, including, but not limited to, established refuges, parks, sanctuaries, ecological reserves or preserves, and Areas of Special Biological Significance (ASBS), where the preservation and enhancement of natural resources requires special protection.
Spawning, Reproduction and Development (SPWN)	Waters support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.
Marine Habitat (MAR)	Waters support marine ecosystems that include, but are not limited to, preservation and enhancement of marine habitats, vegetation (e.g., kelp), fish and shellfish and wildlife (e.g., marine mammals and shorebirds).
Shellfish Harvesting (SHEL)	Waters support habitats necessary for shellfish (e.g., clams, oysters, limpets, abalone, shrimp, crab, lobster, sea urchins and mussels) collected for human consumption, commercial or sport purposes.
Estuarine Habitat (EST)	Waters support estuarine ecosystems, which may include, but are not limited to, preservation and enhancement of estuarine habitats, vegetation, fish, and shellfish, and wildlife, such as waterfowl, shorebirds, and marine mammals.

SOURCE: SARWQCB Basin Plan, 2008.

Sections 1601-1616 require application to the CDFG to obtain a Streambed Alteration Agreement (SAA). This agreement is not considered a discretionary permit subject to CEQA; instead, it is a negotiated agreement between CDFG and the applicant. The agreement may contain mitigation measures, such as erosion control, intended to reduce the effect of the activity on fish and wildlife resources. The agreement may also be provisional and include a long-term monitoring condition to assess the effectiveness of the proposed mitigation(s) related to the activity.

Local

Orange County Stormwater Program

Since 1990, operators of municipal separate storm sewer systems (MS4s) are required to develop a stormwater management program designed to prevent harmful pollutants from impacting water resources via stormwater runoff. In Orange County, storm water and urban runoff enter the storm water system from streets, curbs and gutters and travel, untreated to local water bodies and/or the Pacific Ocean.

As an MS4 operator, Orange County must obtain and implement NPDES permits for both the Santa Ana (SAR) and San Diego (SDR) Regional Water Quality Control Board regions. The proposed project is located in the SARWQCB region. The Orange County Stormwater Program (Program) is a cooperative of the County of Orange, Orange County Flood Control District (OCFCD) and all 34 Orange County cities including Lake Forest and Orange. As the Principal Permittee on both the SAR and SDR NPDES permits, the County guides development and implementation of the Program, collaborating regularly with Co-Permittees to ensure compliance and prevent ocean pollution.

NPDES permits are issued for a five-year term and have generally followed a progressive pattern. The First Term (est. 1990) permit provided an opportunity for Orange County municipalities to establish a program customized to local conditions. In its earliest form, the Program focused on gathering data about existing conditions and implementing an initial set of improvement measures aimed at known water quality deficiencies. Issued in 1996, the Second Term permit built upon the knowledge gained during the First Term and aimed to improve water quality incrementally over time. During this period, Orange County invested heavily in parallel efforts to implement a watershed approach, a comprehensive but lengthy planning tool for addressing water quality as well as habitat restoration, recreation, and flood control. Program developments in the Third Term permit (est. 2003) lead to successful Dry Weather Reconnaissance and monitoring programs, a diverse and recognizable public education campaign and other significant advancements.

In May and December, 2009, the SAR and SDR Boards, respectively, adopted the Fourth Term NPDES permits for Orange County. Looking forward, the Orange County Permittees are striving to modify existing and develop new Program elements to comply with the newly adopted Fourth Term permits.

Drainage Area Management Plan (DAMP) and Water Quality Management Plans (WQMPs)

The specific water pollution control elements of the Orange County Stormwater Program are documented in the Drainage Area Management Plan (DAMP), which is the Permittees' primary policy, planning and implementation document for municipal NPDES Stormwater Permit compliance. The main objective of the DAMP is to fulfill the commitment of the Permittees to develop and implement a program that satisfies NPDES permit requirements. The DAMP provides a foundation for the Orange County Stormwater Permittees to implement model programs designed to prevent pollutants from entering receiving waters to the maximum extent practicable. The description and detail of how this is accomplished on a local level is contained in a Local Implementation Plan (LIP) that is developed by each city (including Lake Forest and Orange) and the County. The LIP is designed to work in conjunction with the DAMP and is specific to each jurisdiction. The LIPs implement the various programs of the DAMP, such as inspection of industrial and commercial businesses, construction projects, new development projects, and illegal discharges/illicit connections.

The DAMP requires that all new development and significant redevelopment projects incorporate appropriate Site Design, Source Control, and Treatment Control Best Management Practices (BMPs) to address specific water quality issues. The DAMP also requires the preparation of Water Quality Management Plans (WQMPs) for all development/redevelopment projects in accordance with the local jurisdiction's LIP. The WQMP requires identification of BMPs that mitigate any potential impacts to receiving waters, such as site design BMPs, routine structural and non-structural BMPs, and long-term operation and maintenance plans for all structural BMPs. IRWD would be required to prepare a WQMP for the proposed project.

City of Lake Forest

City of Lake Forest Ordinances include protection of water resources. Pertinent ordinances are summarized below.

Title 13 Parks and Recreational Facilities

Chapter 13.04 Parks and Recreation Facility Regulations, Section 13.04.032

No person shall swim, fish, bathe, wade, release pet animals in, or pollute the water of any fountain, pond, lake, stream, or reservoir. (Ord. 25 § 2 (part), 1992; Ord. 91-10 § 4 (part), 1991).

Title 14 Streets and Sidewalks

Chapter 14.24 Obstructions, Section 14.24.030

Orange County Code Section 6-1-58 is adopted as follows:

- Sec. 6-1-58. It shall be and is hereby declared unlawful for any person, firm or corporation to run, or to allow to run, upon any highway or right-of-way thereof, any irrigation, waste or other water, provided that such water may be allowed to run upon or in any drain ditch along the side of such highway or right-of-way thereof if the same does not fill or overflow such

ditch or run upon or percolate under the base of the paved or traveled portion of such highway. (Code 1961, § 61.023) (Ord. 58 § 2 (part), 1995)

Title 15 Water and Sewers

Chapter 15.14 Stormwater Quality Management

- Section 15.14.040—prohibits discharges of pollutants in storm water that have not been reduced to the maximum extent practicable.
- Section 15.14.050—for all development, requires development of a storm water pollution prevention plan in accordance with the state General NPDES Permit; submit a storm water pollution control plan, prepared in accordance with City Requirements, prior to obtaining a grading or building permit; incorporation of watershed/drainage area specific requirements.
- Section 15.14.060—best management practices and requirements.
- Section 15.14.070—compliance with general NPDES permits.
- Section 15.14.090—Watercourse protection: Every person owning property through which a watercourse passes, or the occupant of such property, shall keep and maintain the property reasonably free of trash, debris, vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, all existing structures within or adjacent to the watercourse shall be maintained so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse. The said owner or occupant shall not remove healthy bank vegetation beyond that actually necessary for said maintenance, nor remove said vegetation in such a manner as to increase the vulnerability of the watercourse to erosion. (Ord. 76 § 2 (part), 1997)
- Section 15.14.100—prohibited acts or requiring a permit including; pollutant discharge into any drainage (e.g., pipe, channel, watercourse), modifying natural flow of water, fill and work within a stream.

3.8.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to hydrology and water quality are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact to hydrology or water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- 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;

- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river in a manner that would result in substantial erosion or siltation;
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in onsite or offsite flooding;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- 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;
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Impacts Discussion

Groundwater Supply and Recharge

Implementation of the proposed project would not involve or result in any new withdrawals of groundwater. The infiltration of precipitation to the groundwater table is currently limited by the presence of existing impervious surfaces at the Baker site and Intertie facility at Peters Canyon Reservoir. Construction of the proposed project potentially would create new impervious surfaces at these project sites. However, the area of reduced infiltration would not be of sufficient size to effectively lower the groundwater table.

The proposed treated water pipeline and sewer pipeline would include installation of a 24-inch and 15-inch underground pipeline, respectively, the installation of which would require soil compaction around the pipe. The pipeline and compacted soil surrounding it could reduce the infiltration rate of water along the pipeline route. However, the area of reduced infiltration would not be of sufficient size to effectively lower the groundwater table. There would be no impact.

The OC-33 Meter Exchange includes replacement of an existing pipeline segment. The proposed project would reestablish the existing soil compaction around the new pipeline segment. There would be no impact to infiltration or the groundwater table.

Levee or Dam Failure

The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding due to failure of a levee or dam. The aboveground vault structures at

OC-33 are downstream of Santiago Dam and Irvine Lake on Santiago Creek. However, OC-33 is an existing facility, and the proposed project would not introduce any new structures that would be at a risk of loss due to failure of the dam. The remaining project components are not located downstream of a levee or dam nor would they involve construction or other activities that would alter the stability of any levee or dam, or any other flood control structure. There would be no impact.

100-Year Flood Hazard Areas

The Flood Insurance Rate Maps (FIRMs) produced by the Federal Emergency Management Agency (FEMA) indicate areas prone to flood hazards due to major storm events, including 100-year and 500-year flood zones. According to the FIRMs, none of the proposed project components would be located within a 100-year flood hazard area, with the exception of the emergency overflow facility into Serrano Creek. (FEMA, 2004; City of Lake Forest, 2006; County of Orange, 2005). This facility would be designed to withstand scouring and erosion-related forces due to flood flows within the creek. In addition, the proposed project would not involve the construction of any housing. Therefore, the proposed project would not expose people or structures to significant loss, injury, or death due to flooding.

Seiche, Tsunami and Mudflow Exposure

The proposed Baker WTP, sewer pipeline, and treated water pipeline in the City of Lake Forest would be approximately 11 miles from the Pacific Ocean. The Raw Water Pump Station in the City of Orange would be approximately 15 miles from the Pacific Ocean. The OC-33 site is approximately 16 miles from the Pacific Ocean. None of the project components would pose a significant risk to people or structures due to tsunamis. There would be no impacts.

The proposed project would be located primarily in areas characterized by flat topography, with the exception of OC-33. None of the project components are in areas that are prone to liquefaction or landslides. Therefore, none of the project components would pose a significant risk to people or structures due to mudflows. There would be no impact.

The proposed Baker WTP, treated water pipeline, and sewer pipeline are approximately 7.8 miles from Lake Irvine, which is not close enough to be affected by a seiche. Similarly, OC-33 is location approximately 1.5 miles from Irvine Lake, which is not close enough to be affected by a seiche. The proposed Raw Water Pump Station would be approximately 400 feet from the Peter Canyon Reservoir which is sufficiently far enough to be out of any risk of inundation by seiche waves. There would be no impact.

Water Quality Standards

Impact 3.8-1: Construction and operation of the proposed project could violate water quality standards or waste discharge requirements. (Less than Significant)

Construction

Construction of the proposed project components would require site grading, excavation, and trenching. Areas of bare soil would be exposed to erosive forces for prolonged periods of time and could result in increased erosion. Erosion of stockpiled soils and release of hazardous materials used during construction could adversely affect surface water and groundwater. Construction activities involve the use and handling of chemicals such as, but not limited to, oils, fuels, and lubricants. In the event of accidental release of such chemicals, such as spills during fueling of equipment or vehicles, the chemicals could come into contact with storm water runoff and flow into nearby waters of the U.S., thus affecting surface water quality, and/or absorbed into the soil and affect groundwater quality.

Section 402 of the federal Clean Water Act established the National Pollutant Discharge Elimination System (NPDES) to regulate discharges into navigable waters of the U.S. The SWRCB issues NPDES permits in the State of California, including non-point source permits to control urban storm water runoff. To expedite the application for NPDES permits, the SWRCB has developed statewide general storm water permits. The NPDES General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Permit) (Order No. 2009-0009-DWQ) applies to construction sites greater than one acre, from which storm water runoff discharges into waters of the U.S. IRWD would be required to submit a Notice of Intent to comply with the statewide NPDES General Construction Permit and prepare a SWPPP since the construction areas would be greater than one acre in size and would affect waters of the U.S., namely Serrano Creek, San Diego Creek, Santiago Creek, and the Santa Ana River. The SWPPP would include BMPs to control erosion, sedimentation, and hazardous materials release from the construction sites into surface waters. Compliance with the SWPPP BMPs and other federal and state regulations would ensure impacts to water quality from construction activities are less than significant.

Construction of the proposed treated water pipeline and sewer pipeline would require excavation up to 12 feet deep. The depth to groundwater in the vicinity of the proposed pipeline is expected to be deeper than 20 feet below ground surface per the results of preliminary geotechnical investigations. Therefore, construction of the proposed pipeline would not require groundwater dewatering or discharge. No waste discharge requirements or dewatering permits would be required.

Operation

The proposed project would be subject to municipal NPDES Stormwater regulations for discharges to waters of U.S. associated with project operation. As the operator of the countywide municipal storm drain system, Orange County is the Principal Permittee for the municipal NPDES Stormwater Permit issued by the SARWQCB, which has jurisdiction over the proposed project. The proposed project would be required to be designed in accordance with the Orange County Stormwater Program and DAMP, which is the primary implementation document for the municipal NPDES Stormwater Permit, along with the associated LIPs for each city and the County. The DAMP would require IRWD to prepare a WQMP that identifies all BMPs necessary

to mitigate any potential impacts to receiving waters, such as site design BMPs, routine structural and non-structural BMPs, and long-term operation and maintenance plans for all structural BMPs. Such BMPs may include detention of storm water to capture runoff during first-flush storm events or collection and pretreatment of runoff prior to discharge to the municipal storm drain system. Implementation of BMPs in accordance with the project's approved WQMP would ensure that operation of the proposed project would not violate water quality standards or waste discharge requirements. Impacts would be less than significant.

Mitigation Measures

None required.

Drainage

Impact 3.8-2: The proposed project could substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or a river that would increase the rate or amount of surface runoff in a manner that would result in flooding, erosion, or siltation on or off site. (Less than Significant with Mitigation)

Construction of the proposed Baker WTP, Raw Water Pump Station, and OC-33 Meter Exchange would primarily occur at sites that are currently developed with existing water treatment facilities. The proposed project may increase the amount of impervious surfaces at these project sites. However, the proposed project would not change substantially the drainage patterns of the sites and therefore would not result in substantial erosion or surface runoff. The design of the proposed facilities would include specifications for installation of gutters and drainage ditches to direct surface runoff into channels that connect to the storm drain systems in accordance with Orange County Stormwater Program, DAMP and LIPs for each city and the County. These programs require implementation of storm water control measures that protect receiving waters and minimize the transport of pollutants from project sites. Therefore, with implementation of these regulatory requirements, impacts would be less than significant.

The proposed Baker WTP includes an Emergency Overflow Facility that would discharge raw water to Serrano Creek through a 42-inch pipeline. Although expected to occur infrequently, if at all, the proposed project could discharge up to 54 cfs of raw water into Serrano Creek. Serrano Creek has sufficient capacity to accommodate this flow at this location. The raw water would originate either from the forebay or the chlorine contact basin. The overflow would only occur in the unlikely event of a malfunction from either one of the valves associated with these facilities. Other valves upstream would then be utilized to shut off these overflows, or coordination with MWD would occur to shut off flows to the Baker WTP. In a worst case scenario the discharge of overflows would only occur for a period of several hours. The discharge structure would include flow-control features, such as concrete or rip-rap, to dissipate energy of the flows and minimize the potential for erosion in the creek. In addition, the proposed Emergency Overflow Facility would be permitted by the SARWQCB under an existing discharge permit held by IRWD or as an

addendum or amendment to the permit. Permit requirements would include regulatory approval of the design and proposed discharge protocols prior to any discharges into Serrano Creek. Therefore, based on the infrequent and relatively short duration of these emergency discharges combined with the regulatory requirements for the design of the discharge structure, the potential impacts to Serrano Creek would be less than significant.

The proposed treated water pipeline and sewer pipeline would be located below ground and would not include any surface structures other than minor pipeline appurtenances. Installation of the proposed pipeline would not alter existing drainage patterns of the sites. Implementation of Mitigation Measure AES-2 would require surface restoration along the pipeline alignment. The completed pipeline would not result in substantial flooding onsite or offsite. Impacts would be less than significant.

Mitigation Measures

Implement **Mitigation Measure AES-2**.

Significance after Mitigation: Less than significant.

Storm Water

Impact 3.8-3: The proposed project could potentially contribute or create runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide sources of polluted runoff. (Less than Significant)

Implementation of the proposed Baker WTP and Raw Water Pump Station potentially would increase the amount of impervious surfaces at each project site. However, the additional impervious surfaces would cover a relatively small area that would not cause a significant decrease in overall soil permeability. In addition, the proposed improvements would be required to adhere to the local (either City of Orange or Orange County for elements located in Lake Forest) storm water requirements. Implementation of required storm water control measures would minimize offsite flows and include measures to ensure that capacities of drainage systems are adequate for large storm events. As a result, the proposed facilities would not result in an increase in flooding or erosion and would not result in runoff that would exceed the capacity of local storm drains. The local storm water requirements also include measures that minimize pollutants from being transported offsite.

Implementation of the proposed treated water pipeline and sewer pipeline would result in soil compaction around the underground pipe that could reduce the permeability of the soil. However, soil compaction would occur in a relatively small area that would not cause a substantial decrease in soil permeability. The OC-33 Meter Exchange includes replacement of an existing pipeline segment. The proposed project would reestablish the existing soil compaction around the new pipeline segment. As a result, the proposed pipelines would not result in an increase in flooding

or erosion and would not result in runoff that would exceed the capacity of local storm drains. Therefore the pipeline would not substantially degrade water quality. Impacts would be less than significant.

Mitigation Measures

None required.

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3.9 Land Use, Planning, and Recreation

This section describes the existing land uses and recreational resources in the vicinity of the proposed project and evaluates potential impacts associated with implementation of the proposed project. The section describes the regulations that govern land use and recreational lands, including zoning ordinances and general plan policies.

3.9.1 Environmental Setting

Regional Setting

The proposed project is located within the City of Lake Forest, City of Orange, and County of Orange, California. Orange County is located along the Pacific Ocean, and is bounded by Los Angeles County to the north and northwest, San Bernardino County to the northeast, Riverside County to the east, and San Diego County to the southeast. A somewhat rectangular landmass, Orange County stretches approximately 40 miles along the coast and extends inland approximately 20 miles, covering 798 square miles. Orange County includes 34 cities and has a population of 2.94 million residents. The unincorporated territory, consisting of approximately 321 square miles, is geographically diverse with unincorporated areas spread throughout the county (Orange County, 2008)

Project Area Setting

Land Use and Zoning

The land use and zoning designations for the project components are shown in **Table 3.9-1**. Land uses in the project area are under the jurisdiction of the City of Orange, City of Lake Forest, and County of Orange and are based on the cities' and County's General Plans.

**TABLE 3.9-1
LAND USE AND ZONING DESIGNATIONS FOR PROJECT FACILITIES**

Project Component	General Plan Land Use	Zoning
Baker Treatment Plant	Public Facilities	General Agriculture
Treated Water Pipeline (Option 1)	Public Facilities; Low-Medium Density Residential, Low Density Residential	General Agriculture; High Density Residential; Medium Density Residential
Treated Water Pipeline (Option 2)	Public Facilities; Low-Medium Density Residential	General Agriculture; High Density Residential
Sewer Pipeline	Regional Park/Open Space	Open Space
Raw Water Pump Station	Open Park Space	Recreation Open Space
OC-33 Meter Exchange	Open Space	General Agricultural

SOURCES: City of Lake Forest, Land Use Map, 2008; City of Lake Forest, IRWD Approved Zoning, 2008; City of Lake Forest, Zoning Map, 2010; City of Orange, Land Use Map, March 2010; City of Orange, Zoning Map, February 2010; County of Orange Land Use Map, 2005; County of Orange Zoning Map, 2005.

The Baker site is located in the City of Lake Forest, near the intersection of Wisteria and Palmwood. The Baker site is already developed as a public utilities facility. The land use designation at the Baker site is Public Facility (City of Lake Forest, 2008a), and the zoning designation is General Agriculture (A1) (City of Lake Forest, 2008b).

The proposed sewer pipeline would be located within an existing 15-foot utility easement along the Serrano Creek Trail in the City of Lake Forest's Serrano Creek Park. The current land use designation for the sewer pipeline is Regional Park/Open Space (City of Lake Forest, 2008b), and the zoning designation is Open Space (City of Lake Forest, 2010).

A new pipeline may be required to convey treated water from the Baker WTP to the South County Pipeline. The corridor for this potential pipeline would run from the Baker WTP through primarily open space lands adjacent to residential areas. Two pipeline alignment options are being considered. The corridor for Option 1 includes land use designations for Public Facilities, Low-Medium Density Residential, and Low Density Residential. The corridor for Option 2 includes land use designation for Public Facilities and Low-Medium Density Residential. Both treated water pipeline options would begin at the Baker site, which is zoned General Agriculture. Pipeline Option 1 would run through lands zoned for High Density Residential and Medium Density Residential. Pipeline Option 2 would run through lands zoned for High Density Residential only (Table 3.9-1).

The proposed Raw Water Pump Station would be located near Peters Canyon Reservoir in the City of Orange, at the site of the existing Baker/Irvine Lake Pipeline Intertie facilities. The proposed pump station would be located on land currently owned by the Santiago Aqueduct Commission (SAC), of which IRWD is a member. The proposed pump station would be located on land designated as Open Park Space and zoned Recreation Open Space (Table 3.9-1).

The proposed OC-33 Meter Exchange would be located within an existing SAC utility easement within Irvine Regional Park. The current land use designation for OC-33 is Open Space (County of Orange, 2005), and the zoning designation is General Agriculture (County of Orange, 2005).

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others because of the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, hotels, schools, rest homes, and hospitals are generally more sensitive to noise than commercial and industrial land uses. Sensitive receptors near the Baker site include the neighboring residential areas to the east, south, and west. The treated water pipeline alignments and the sewer pipeline are in close proximity to residential land uses. There are no sensitive receptors in close proximity to the Raw Water Pump Station. The closest sensitive receptors are residential land uses approximately 0.25 miles north of the proposed pump station site.

Recreational Facilities

City of Lake Forest

The Lake Forest Parks and Recreation Division is located at City Hall, 25550 Commercentre Drive. The Lake Forest Parks and Recreation Division is committed to providing residents of all ages positive experiences through a variety of high-quality programs, activities, and services under the direction of professional and dedicated staff who are responsive to the changing needs of the community.

The City of Lake Forest has many public parks, lakes, and urban forests. Thus, Lake Forest residents enjoy a variety of parks and trails with different amenities. Approximately 200 acres of public city parkland and recreational facilities have been developed within the City of Lake Forest. These 200 acres of parkland consist of a total of twenty-nine parks and recreational facilities. Private parks are also distributed throughout the City in various planned community developments. (City of Lake Forest, 2008c)

Serrano Creek Park is located at 25101 Serrano Road and is adjacent to the Baker site to the east and south. This 44-acre park includes restrooms, one playground, a walking trail, and three picnic tables.

Serrano Park is located at the intersection of Tamarisk and Peachwood, approximately 0.3 miles west of the Baker site. This 11.2-acre park includes ball fields for soccer and open play along with a basketball court and picnic tables.

County of Orange

Peters Canyon Regional Park is located at 8548 E. Canyon View Avenue. This park encompasses 354 acres of riparian, freshwater marsh, grassland habitats, and offers a variety of graded roads and trails for hikers, mountain bikers, and equestrians. The 55-acre Upper Peter Canyon Reservoir is home to many residents and migrating waterfowl. Willows, sycamores and black cottonwoods line the lake and Peters Canyon Creek which meanders through the canyon (Orange County Parks, 2010).

The OC-33 site is located within the 477-acre Irvine Regional Park. Park activities include hiking and multi-use trails, ball fields, playgrounds, picnic areas, band shell, nature center, pony rides, and a horseshoe pit (Orange County Parks, 2010b). Santiago Creek flows through the southern portion of the park. OC-33 is accessed via an unimproved roadway within the park, with access restricted by a locked gate.

3.9.2 Regulatory Framework

Regional

Southern California Association of Governments

SCAG's Regional Comprehensive Plan and Guide (RCPG) and RHNA are tools for coordinating regional planning and development strategies in southern California. The RCPG includes policies related to Growth Management, Water Quality, Air Quality, Open Space, and Transportation.

Orange County Natural Community Conservation Plan

The Orange County Environmental Management Agency (EMA) has prepared a Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) for the Central and Coastal Subregion of the County of Orange, including the City of Lake Forest. The NCCP/HCP was prepared in cooperation with CDFG and USFWS. The intent of the NCCP/HCP program is to provide long-term, regional protection of natural vegetation and wildlife diversity, while allowing compatible land use and appropriate development and growth. The NCCP/HCP is accomplished with the institution of a subregional Habitat Reserve System, and implemented through a coordinated program to manage biological resources within the habitat preserve.

Local

The City of Lake Forest General Plan

Land Use Element

The City of Lake Forest General Plan contains goals, policies, and plans that are intended to guide land use and development decisions. The General Plan consists of a Land Use Policy Map and the following policies that relate to Land Use:

- | | |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Goal 3.0 | New development that is compatible with the community. |
| Policy 3.1 | Ensure that new development fits within existing setting and is compatible with the physical characteristics of available land, surrounding land uses, and public infrastructure availability. |
| Policy 3.2 | Preserve and enhance the quality of Lake Forest residential neighborhoods by avoiding or abating the intrusion of disruptive, non-conforming buildings and uses. |

Recreational and Resources Element

- | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Policy 1.1 | Promote the development and maintenance of a balanced system of public and private recreational lands, facilities, and programs to meet the needs of the Lake Forest population. |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- Policy 1.2 Maximize the utilization of existing parks, recreational facilities, and open space within Lake Forest.
- Policy 1.3 Operate and maintain public park and recreational facilities in a manner that ensures safe and convenient access for all members of the community.
- Policy 1.9 Preserve all designated open space areas until sufficient parkland exists in the City to meet the established parkland standard to provide adequate recreational opportunities for the community except any land within the Regional Park/Open Space designation requiring reconfiguration to create a continuous open space link.

The City of Orange General Plan

Land Use Element

The City of Orange General Plan contains goals, policies, and plans that are intended to guide land use and development decisions. The General Plan consists of a Land Use Policy Map and the following policies that relate to Land Use:

- Goal 6.0** **New development that is compatible with the community.**
- Policy 6.4 Link existing equestrian trails and provide outlets to open space areas, particularly in the northeast region of the City, to reach regional parks such as Santiago Oaks, Irvine, Peters Canyon, and the Cleveland National Forest.

City of Orange Zoning Code

The Zoning Ordinance of the Orange Municipal Code provides zoning districts and maps that establish and control development regulations consistent with General Plan Land Use Designations. The existing designation for the pump station is Recreation Open Space.

City of Lake Forest Zoning Code

The Zoning Ordinance of the Lake Forest Municipal Code provides zoning districts and maps that establish and control development regulations consistent with General Plan Land Use Designations. The existing designation for the Baker site is General Agriculture, while the existing designation for the proposed pipelines are General Agriculture, High Density Residential, Medium Density Residential, and Open Space.

3.9.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to land use and recreation are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact if it would:

- 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 or natural community conservation plan.
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Impacts Discussion

The following is a discussion of the potential effects of the proposed project to land use and recreation according to the key issue areas identified in Appendix G of the *CEQA Guidelines*.

Divide an Established Community

The proposed Baker WTP would be constructed onsite and replace the existing BFP. The proposed Raw Water Pump Station would be constructed onsite and replace the existing Intertie facility. The proposed meter exchange and pipeline replacement at the OC-33 site would be constructed onsite and replace existing facility. These project components are not linear features and would not divide an established community. In addition, the proposed Baker WTP is directly adjacent to a residential community to the southwest. The presence of the Baker WTP would not preclude implementation of future development projects, such as Serrano Summit to the northeast, which would eventually surround the Baker WTP with residential and civic land uses. The proposed project would not affect the establishment of future communities.

The proposed treated water pipeline and sewer pipeline would be entirely underground with some above-ground appurtenances and would not create a barrier or physically divide an established community. There would be no impact.

Habitat Conservation Plan

The City of Lake Forest is located within Orange County which has an approved Natural Community Conservation Program/Habitat Conservation Plan (NCCP/HCP). The proposed Baker WTP, treated water pipeline, and sewer pipeline would be located within Non-Reserve Lands in the Central Subarea of the NCCP/HCP. There are no Reserve lands located within the boundaries of the City of Lake Forest. The proposed Baker WTP and pipelines would not conflict with the NCCP/HCP. There would be no impacts.

The proposed Raw Water Pump Station and OC-33 Meter Exchange would be located within Reserve Lands of the Orange County NCCP/HCP; however construction activities would be conducted within a fenced, previously developed area and therefore would not conflict with preservation requirements set forth by the NCCP/HCP. There would be no impact.

Existing Neighborhood Parks

The proposed project would be limited to the construction of the Baker WTP, treated water pipeline, sewer pipeline, Raw Water Pump Station, and OC-33 Meter Exchange. As described in Chapter 5, Growth Inducement, the proposed project would not build new homes or businesses and would not have a direct or indirect impact on population growth in the project area. As such, the proposed project would not result in the increased use of regional parks and recreational facilities that would cause accelerated deterioration. The proposed project would not require construction of additional recreational facilities that could have adverse effects on the environment. There would be no impact.

Land Use Plans, Policies, Regulations

Impact 3.9-1: Implementation of the proposed project could conflict with applicable land use plans, policies, or regulations. (Less than Significant)

The land use designation for the Baker site is Public Facilities (Table 3.9-1). The proposed Baker WTP would be consistent with this land use designation, which allows public utility land uses. The City zoning designation for the proposed Baker WTP is General Agriculture (A1), which allows for agriculture, outdoor recreational uses, and low-intensity uses that have a predominantly open space character. Per Section 9.10.030 of the Lake Forest Zoning Code, public/private utility buildings and structures are permitted in an A1 zone subject to a site development permit. Water treatment facilities are not subject to city zoning regulations, per Government Code 53091, and therefore a site development permit would not be required. Impacts would be less than significant.

The proposed treated water pipeline corridors are designated as Low-Medium Density Residential, Low Density Residential, and Public Facilities (Table 3.9-1). The pipeline would be consistent with these land use designations, which allow for living accommodations as well as complementary land uses such as public facilities. The proposed pipeline would be compatible with residential land uses as it would provide a public utility. The City zoning designation for the proposed pipeline corridors include General Agriculture, High Density Residential, and Medium

Density Residential. Per Sections 9.10.030, 9.44.030, and 9.56.030 of the Lake Forest Zoning Code, public/private utility buildings and structures are permitted in these zones subject to a site development permit. Water transmission facilities are not subject to city zoning regulation, per Government Code 53091, and therefore a site development permit would not be required. Impacts would be less than significant.

The land use designation for the proposed sewer pipeline is Regional Park/Open Space and the zoning designation is Open Space (Table 3.9-1). The City of Lake Forest Land Use Element does not state whether public facilities are compatible with land uses designated as Regional Park/Open Space. Per Section 9.16.030 of the Lake Forest Zoning Code, public/private utility buildings and structures are permitted in an Open Space zone subject to a site development permit. Water and wastewater transmission facilities are not subject to city building or zoning ordinances, per Government Code 53091, and therefore a site development permit would not be required. Impacts would be less than significant.

The site for the proposed Raw Water Pump Station is designated as Open Space Park (Table 3.9-1).¹ This designation allows for passive and active recreation. The proposed pump station would replace the existing Intertie facility and thus would be located onsite at an existing public water utility facility and would not conflict with the land use at the site. The proposed Raw Water Pump Station site is zoned as Recreation Open Space. Per Section 17.22.030 of the Orange Zoning Code, public/private utility buildings and structures are permitted in a Recreation Open Space zone subject to a conditional use permit. Water transmission facilities are not subject to city zoning ordinances, per Government Code 53091, and therefore a conditional use permit would not be required. Impacts would be less than significant.

The site for the proposed OC-33 Meter Exchange is designated as Open Space (Table 3.9-1). This designation allows for land uses that do not require a commitment of significant urban infrastructure. The proposed meter and pipeline exchange would replace existing water utility facilities comprised of minimal infrastructure and would not conflict with the land use at the site. The OC-33 site is zoned as General Agriculture. Per Section 7-9-55.4 of the County Zoning Code, public/private utility buildings and structures are permitted in a General Agriculture zone subject to a use permit. Water transmission facilities are not subject to city zoning ordinances, per Government Code 53091, and therefore a use permit would not be required. Impacts would be less than significant.

The proposed facilities would not conflict with any land use plan, policy, or regulation. Impacts would be less than significant.

Mitigation Measures

None required.

¹ The City of Orange City Council is scheduled to adopt the 2009 Orange General Plan at its meeting on March 9, 2010.

Recreational Facilities

Impact 3.9-2: Construction of the proposed project could affect recreational facilities and have a significant effect on the environment. (Less than Significant with Mitigation)

The proposed sewer pipeline would be constructed within an existing 15-foot utility easement along a segment of Serrano Creek Trail. Construction of the pipeline would take approximately six months, during which time portions of the trail may be closed to the public as pipeline installation progresses. On average, 50 to 100 feet of pipeline may be installed per day. During construction, trail detours would be established to enable continued use of the trail by the public to the extent feasible. Implementation of **Mitigation Measure LU-1** would ensure that IRWD maintain access to recreational trails to the extent feasible. Once the pipeline is installed, the trail would be restored to pre-construction conditions as required by Mitigation Measure AES-2. (See Section 3.1 Aesthetics for Mitigation Measure AES-2). There would be no long-term permanent impact to recreational facilities. Impacts would be less than significant with mitigation.

The proposed Raw Water Pump Station would be located within Peters Canyon Regional Park, on land designated as Open Space Park. However, the proposed pump station would be constructed onsite and replace the existing Intertie facility. The proposed pump station would not affect the surrounding recreational facility and as a result would not have an adverse physical effect on the environment. There would be no impact.

The proposed OC-33 Meter Exchange would be located within Irvine Regional Park, on land designated as Open Space. However, the proposed meter and pipeline exchange would be constructed onsite and replace existing facilities. The OC-33 site is access via an unimproved road within the park; however, access is restricted by a locked gate. The OC-33 Meter Exchange would not affect the surrounding recreational facility or its use by the public and as a result would not have an adverse physical effect on the environment. There would be no impact.

Mitigation Measures

LU-1: For installation of the sewer pipeline, IRWD shall require the construction contractor to prepare and implement a Trail Detour Plan prior to construction. The plan shall:

- Identify hours of construction.
- Include a work area delineation requiring trail detours.
- Identify and establish detours around construction where room is available without affecting vegetation. Install detour signs as appropriate.
- If detours are not possible identify signage requirements noting temporary trail closure.
- Post notices regarding upcoming trail detours and closures at trail heads and entry points at least 10 days in advance.

Implement **Mitigation Measure AES-2**.

Significance after Mitigation: Less than significant.

References – Land Use, Planning and Recreation

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3.10 Noise and Vibration

This section provides an overview of the existing noise environment at the proposed project site and surrounding area, the regulatory framework, an analysis of potential noise impacts that would result from implementation of the proposed project, and mitigation measures where appropriate.

3.10.1 Environmental Setting

Noise Principles and Descriptors

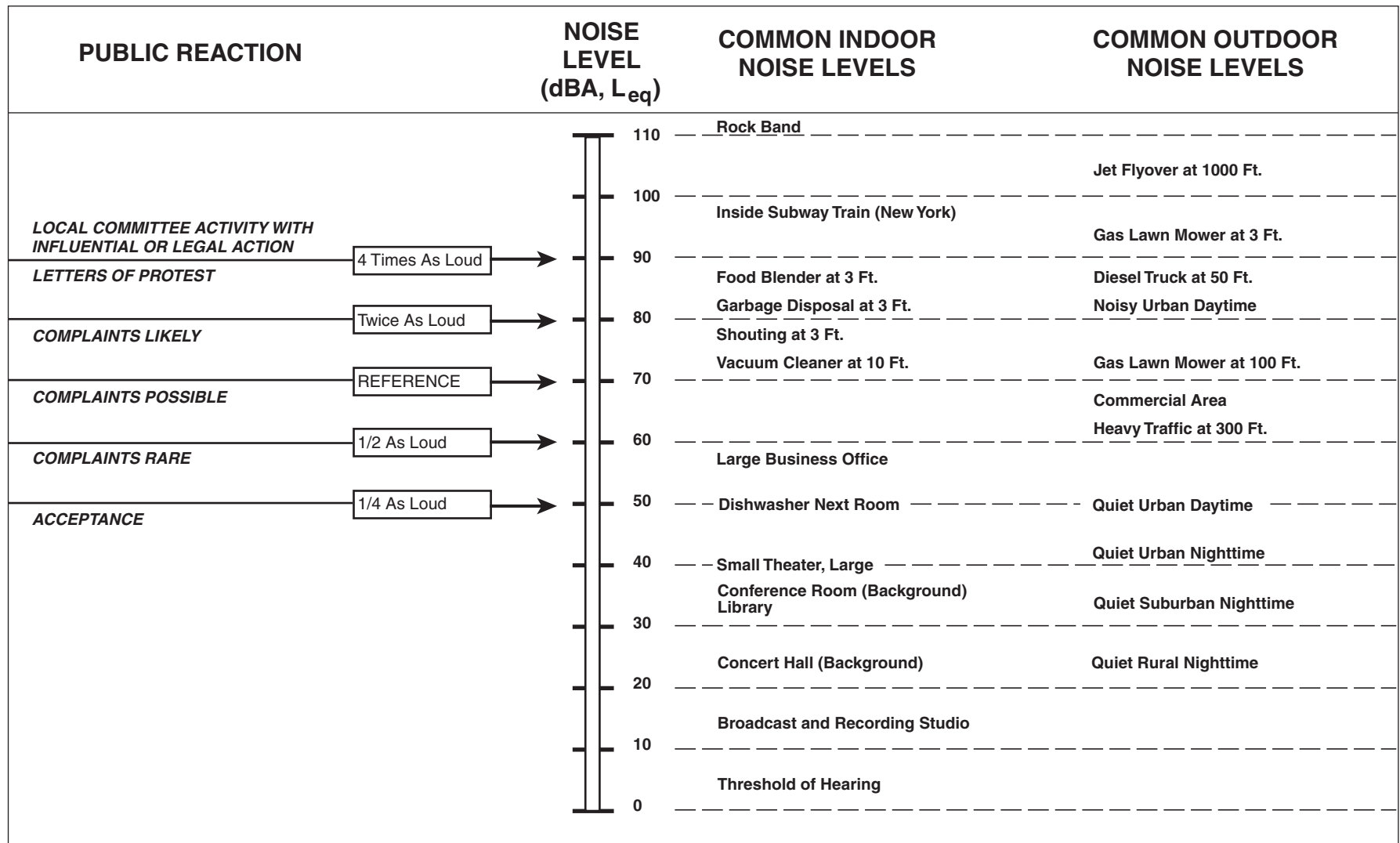
Noise is defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ears decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements. Some representative noise sources and the corresponding A-weighted noise levels are shown in **Figure 3.10-1**.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in Figure 3.10-1 are representative of measured noise at a given instant in time; however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions.



SOURCE: ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 3.10-1
Effects of Noise on People

What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment varies the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

Leq: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The Leq is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

Lmax: The instantaneous maximum noise level for a specified period of time.

L50: The noise level that is equaled or exceeded 50 percent of the specified time period. The L50 represents the median sound level.

L90: The noise level that is equaled or exceeded 90 percent of the specified time period. The L90 is sometimes used to represent the background sound level.

DNL: Also termed Ldn, the DNL is the 24-hour day and night A-weighted noise exposure level, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night (“penalizing” nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.

CNEL: Similar to the DNL the Community Noise Equivalent Level (CNEL) adds a 5-dBA “penalty” for the evening hours between 7:00 p.m. and 10:00 p.m., in addition to a 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

As a general rule, in areas where the noise environment is dominated by traffic, the Leq during the peak-hour is generally equivalent to the DNL at that location (Caltrans, 1998).

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to

measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard surfaced sites and 7.5 dBA for soft surfaced sites for each doubling of distance from the reference measurement. Hard surfaced sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (the drop-off rate) is simply the geometric spreading of the noise from the source. Soft surfaced sites have an absorptive ground surface such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (such as traffic noise from vehicles) attenuate at a rate of between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 1998).

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* (FTA, 2006), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even

in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving and operating heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV and the FTA threshold of human annoyance to ground-borne vibration is 80 RMS (FTA, 2006).

Project Area Noise Environment and Sensitive Receptors

The noise environment surrounding the proposed project site is influenced primarily by traffic on local roadways. Some land uses are considered more sensitive to ambient noise levels than others because of the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, hotels, schools, rest homes, and hospitals are generally more sensitive to noise than commercial and industrial land uses. The proposed Baker WTP, treated water pipeline alternatives, and sewer pipeline are located in an area consisting primarily of residential land uses. The nearby residences, which qualify as noise sensitive land uses, would potentially be exposed to noise generated from project activities. The distance from the pipeline construction activities to the closest residences is approximately 30 feet. Construction activities at the Baker site would get as close as 100 feet from residences located on Wisteria. The proposed Raw Water Pump Station would be located near Peters Canyon Reservoir, approximately 1,190 feet south of the nearest sensitive receptor. The pipeline replacement associated with the OC-33 Meter Exchange is would be approximately 500 feet from the nearest sensitive receptor within Irvine Regional Park to the west.

3.10.2 Regulatory Framework

Federal

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dB. The state pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The state has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of DNL 45 dBA in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Local

City of Lake Forest Municipal Code

Chapter 11.16.040 Exterior Noise Standards, states that the following exterior noise standards apply to all residential property:

- 55 dBA between the hours of 7:00 a.m. and 10:00 p.m.
- 50 dBA between the hours of 10:00 p.m. and 7:00 a.m.

Section 11.16.060 Exemptions states that construction noise is exempt from the exterior noise standards when it occurs between the hours of 7:00 a.m. and 8:00 p.m., excluding Sundays or federal holidays. Any activities would violate the noise standards would require a variance from the City of Lake Forest (Chapter 11.16.100 Variance procedure).

City of Orange Municipal Code

Section 8.24.050 Exterior Noise Standards states that the following exterior noise standards apply to all residential property:

- 55 dBA between the hours of 7:00 a.m. and 10:00 p.m.

- 50 dBA between the hours of 10:00 p.m. and 7:00 a.m.

Section 8.24.070 Exemptions states that construction noise is exempt from the exterior noise standards when it occurs between the hours of 7:00 a.m. and 8:00 p.m., excluding Sundays or federal holidays. Any activities would violate the noise standards would require a variance from the City of Orange (Chapter 8.24.120 Variance procedure).

County of Orange Municipal Code

Section 4-6-5 Exterior Noise Standards states that the following exterior noise standards apply to all residential property:

- 55 dBA between the hours of 7:00 a.m. and 10:00 p.m.
- 50 dBA between the hours of 10:00 p.m. and 7:00 a.m.

Section 4-6-7 Special Provisions states that construction noise is exempt from the exterior noise standards when it occurs between the hours of 7:00 a.m. and 8:00 p.m., excluding Sundays or federal holidays. Any activities would violate the noise standards would require a variance from the County of Orange (Section 3-15-5 Exemptions).

3.10.3 Impacts and Mitigation Measures

Methodology

Noise impacts are assessed based on a comparative analysis of the noise levels resulting from the proposed project and the noise levels under existing conditions. Analysis of temporary construction noise effects is based on typical construction phases and equipment noise levels and attenuation of those noise levels due to distances, and any barriers between the construction activity and the sensitive receptors near the sources of construction noise.

Significance Criteria

Based on the CEQA Guidelines, a project may be deemed to have a significant effect on the environment with respect to noise and/or ground-borne vibration if it 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;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- Exposure of people residing or working in the project area to excessive noise levels (for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport);
- Exposure of people residing or working in the project area to excessive noise levels (for a project within the vicinity of a private airstrip); or

- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels.

Impacts Discussion

The following is a discussion of the potential effects of the proposed project to noise according to the key issue areas identified in Appendix G of the *CEQA Guidelines*.

Public Airports or Private Airstrip

The closest airport to the proposed project is the Marine Corps Air Station (MCAS) El Toro, located approximately two miles northeast of the proposed Baker site. The air station was decommissioned in 1999. Thus, the proposed project would not expose people to excessive noise levels associated with airport uses. There would be no impact.

Noise Standards

Impact 3.10-1: Project construction and operation could expose persons to or generate noise levels in excess of the City of Orange and/or City of Lake Forest noise standards. (Less than Significant with Mitigation)

Construction

Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. In addition, certain types of construction equipment generate impulsive noises (such as pile driving), which can be particularly bothersome. Pile driving however is not anticipated as a construction method required for the proposed project. Noise from construction activities generally attenuates at a rate of 6.0 to 7.5 dBA per doubling distance. Based on the proposed project site layout and terrain, an attenuation of 6.0 dBA is assumed.

Pipelines

The nearest sensitive receptor to pipeline construction activities would be approximately 30 feet from the sewer pipeline alignment. **Table 3.10-1** shows that the greatest noise levels are associated with excavation and finishing and would be 89 dBA at a distance of 50 feet. Accordingly, attenuated at 30 feet, these residences would experience noise levels of up to 93 dBA Leq during finishing and excavation, the loudest of construction activities that would occur. However, an average of 50 to 100 feet of pipeline may be installed per day; therefore sensitive receptors would be exposed to pipeline construction noise for very short periods of time.

Baker WTP

The nearest sensitive receptors to construction activities at the Baker site would be residences on Wisteria approximately 100 feet from the Baker site property boundary. **Table 3.10-1** shows that the greatest noise levels are associated with excavation and finishing and would be 89 dBA at a

**TABLE 3.10-1
 TYPICAL CONSTRUCTION NOISE LEVELS**

Construction Phase	Noise Level (dBA, Leq) ^a
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

^a Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: U.S. Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

distance of 50 feet. Accordingly, attenuated at 100 feet, these residences would experience noise levels of up to 83 dBA Leq during finishing and excavation, the loudest of construction activities that would occur.

Raw Water Pump Station

The nearest sensitive receptor to construction activities at the Raw Water Pump Station would be residences approximately 1,190 feet ~~south~~north. Table 3.10-1 shows that the greatest noise levels are associated with excavation and finishing and would be 89 dBA at a distance of 50 feet. Accordingly, attenuated at 1,190 feet, these residences would experience noise levels of up to 61 dBA Leq during finishing and excavation, the loudest of construction activities that would occur.

OC-33 Meter Exchange

The pipeline replacement associated with the OC-33 Meter Exchange is would be approximately 500 feet from the nearest sensitive receptor within Irvine Regional Park to the west. Table 3.10-1 shows that the greatest noise levels are associated with excavation and finishing and would be 89 dBA at a distance of 50 feet. Accordingly, attenuated at 30 feet, these residences would experience noise levels of up to 69 dBA Leq during finishing and excavation, the loudest of construction activities that would occur.

As a result, the construction of the proposed project would have the potential to have a temporary noise impacts to sensitive receptors. However, with the implementation of Mitigation Measure NOISE-1, which includes but is not limited to complying with the exempt construction hours in accordance with the City of Lake Forest Municipal Code, City of Orange Municipal Code, and County of Orange Municipal Code, would reduce construction noise impacts to less than significant levels.

For the proposed project, a few pipeline tie-ins, such as the sewer and AMP pipeline connections, would have to occur at night during periods of low flow in the pipeline system. These activities

would be of a short duration (one night) and would require IRWD to secure a variance from the City of Lake Forest's exterior noise standards if such tie-in activities generate noise in excess of the exterior noise standards. Implementation of Mitigation Measure NOISE-2 would ensure that IRWD secures noise variances from the relevant jurisdiction prior to nighttime construction activities that would generate noise in excess of noise standards. Mitigation Measure NOISE-1 would also require IRWD provide advanced notice of nighttime construction activities to neighboring properties. Impacts would be considered less than significant with mitigation.

Operation

The proposed project would construct the Baker WTP at the existing Baker site. Noise generating equipment such as pumps, blowers, and strainers that would be used in operation of the proposed Baker WTP would be housed inside buildings to the extent possible. The buildings and mechanical equipment would be designed for noise attenuation such that the sound levels would be in compliance with the City of Lake Forest Noise Ordinance (11.16.040 Exterior Noise Standards) at the Baker WTP property line. At the boundary with adjacent residential properties, noise levels would not exceed 55 dBA between the hours of 7:00 a.m. and 10:00 p.m. or 50 dBA between the hours of 10:00 p.m. and 7:00 p.m. Therefore, operation of the WTP would not generate noise levels in excess of standards and would be considered less than significant. Implementation of Mitigation Measure NOISE-3 would ensure that project operation does not exceed noise standards by requiring post-construction noise monitoring to confirm compliance with standards at the property boundary.

The Raw Water Pump Station is being constructed at the existing Intertie facility. The pumps at the proposed facility would be enclosed, and would be inaudible to the nearest sensitive receptor located approximately 1,190 feet to the ~~south~~^{north}. Nonetheless, the proposed pump station would be designed for noise attenuation such that the sound levels would be in compliance with the City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards) at the property line. Implementation of Mitigation Measure NOISE-3 would ensure that project operation does not exceed noise standards by requiring post-construction noise monitoring to confirm compliance with standards at the property boundary. Impacts would be considered less than significant.

Mitigation Measures

NOISE-1: To reduce daytime noise impacts due to construction activities, in addition to complying with the construction hours for standard construction activities, the project applicant shall require construction contractors to implement the following measures:

- Construction shall be restricted to the hours between 7:00 a.m. and 8:00 p.m., excluding Sundays or federal holidays, except as otherwise permitted by the City of Lake Forest or the City of Orange.
- Equipment and trucks used for project construction shall use noise control techniques (e.g., mufflers, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds).
- Adjacent land uses within 500 feet of the construction site shall be notified about the estimated duration and hours of construction activity at least 30 days before the start of construction.

- A noise disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad mufflers, etc.) and would be required to resolve the noise complaints. All notices sent to adjacent land uses within 500 feet of the construction site and all signs posted at the construction site shall list the telephone number and e-mail address for the noise disturbance coordinator.

NOISE-2: IRWD shall secure a noise variance from the relevant jurisdiction prior to nighttime construction activities that would generate noise in excess of noise standards.

NOISE-3: IRWD shall conduct a post-construction noise survey to ensure that operation of new equipment at the Baker WTP and Raw Water Pump Station is in compliance with the City of Lake Forest Noise Ordinance (11.16.040 Exterior Noise Standards) and City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards) at the property boundary.

Significance after Mitigation: Less than significant.

Vibration

Impact 3.10-2: Project construction would generate groundborne vibration and noise. (Less than Significant)

Vibration and groundborne noise impacts tend to occur when physically forceful or ground-penetrating equipment is utilized, such as pile drivers or where blasting is necessary. The proposed construction activities include excavation and large earth-moving vehicles, but no pile driving or percussive impact construction methods will be needed. The nearest sensitive receptors to the Baker WTP site are located approximately 100 feet from proposed construction activities. At this distance, groundborne vibration from the proposed construction activities would not damage neighboring structures.

The nearest sensitive receptors to the sewer pipeline construction activities would be approximately 30 feet. Pipeline construction would require the use of a backhoe, a front end loader, and a haul truck. Open-trench construction methods in this area would not generate substantial vibration. Furthermore, an average of 50 to 100 feet of pipeline may be installed per day; therefore local receptors would be exposed to pipeline construction noise and vibration for short periods of time. As a result, the proposed project would not generate significant groundborne vibration or groundborne noise impacts that could result in damaged properties. Impacts would be considered less than significant.

Mitigation Measures

None required.

Ambient Noise Levels

Impact 3.10-3: Activities associated with operations of the project could increase noise levels at nearby land uses. (Less than Significant)

The proposed project would construct the Baker WTP at the existing Baker site. Noise generating equipment such as pumps, blowers, and strainers that would be used in operation of the proposed Baker WTP could elevate ambient noise levels at nearby land uses, where nearby residences are as close as approximately 100 feet from the Baker site property boundary. The proposed facilities would be housed inside buildings to the extent possible. The buildings and mechanical equipment would be designed for noise attenuation such that the sound levels would be in compliance with the City of Lake Forest Noise Ordinance (11.16.040 Exterior Noise Standards) at the Baker WTP property line. At the boundary with adjacent residential properties, noise levels would not exceed 55 dBA between the hours of 7:00 a.m. and 10:00 p.m. or 50 dBA between the hours of 10:00 p.m. and 7:00 p.m. The maintenance of ambient noise levels at or below those required by the noise ordinance would be sufficient for impacts to be considered less than significant. Implementation of Mitigation Measure NOISE-3 would ensure that operational noise levels do not exceed those permitted under the noise ordinance.

The Raw Water Pump Station is being constructed at the existing Intertie facility. The pumps at the proposed facility would be enclosed and would be inaudible to the nearest sensitive receptor located approximately 1,190 feet to the south. Therefore, would be no increase in ambient noise levels as detected by neighboring sensitive land uses; impacts would be less than significant.

Mitigation Measures

Implement **Mitigation Measure NOISE-3**.

Significance after Mitigation: Less than significant.

References – Noise and Vibration

Caltrans, *Technical Noise Supplement*, 1998.

City of Lake Forest Municipal Code, Section 8.24.050 Exterior Noise Standards
<http://library.municode.com/index.aspx?clientId=16439&stateId=5&stateName=California>

City of Orange Municipal Code, Section 8.24.050 Exterior Noise Standards
<http://library.municode.com/index.aspx?clientId=16539&stateId=5&stateName=California>

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, 2006.

U.S. Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

3.11 Public Services and Utilities

This section discusses existing public services, utilities and energy systems in the vicinity of the proposed project. This section presents the associated regulatory framework and provides an analysis of potential impacts to public services, utilities, and energy systems that would result from the proposed project. Public services include: fire protection, police protection, schools, and hospitals. Public utilities in the project area include: water, wastewater, storm water, solid waste, electricity, and natural gas conveyance facilities.

3.11.1 Environmental Setting

The following discussion describes existing public services, utilities and energy systems.

Public Services

Fire Protection

Fire protection and paramedic services are provided in the vicinity of the Baker site by the Orange County Fire Authority (OCFA). The Lake Forest Fire Station is located at 23022 El Toro Road, approximately two miles from the Baker site (OCFA, 2010).

Fire protection and paramedic services are provided in the vicinity of the Raw Water Pump Station by the City of Orange Fire Department. The nearest City of Orange fire station is located at 7401 E. Fort Road, approximately one mile from the proposed Pump Station (City of Orange, 2009a).

Fire protection and paramedic services are provided in the vicinity of OC-33 by the OCFA. The Orange Fire Station #7 is located at 8501 E. Fort Road, approximately one mile from OC-33 (OCFA, 2010).

Police Protection

Police services may be required at the construction site in the event of an emergency. The Orange County Sheriff's Department provides law enforcement services to the Baker site and surrounding area and to the OC-33 site. The Lake Forest Community Police Center, located at 25550 Commercentre Drive in Lake Forest, is approximately three miles from the Baker site (City of Lake Forest, 2006). The Orange Police Department provides law enforcement services in the vicinity of the proposed Raw Water Pump Station area. The nearest City of Orange police station is located at 8554 E. Fort Road, approximately one mile from the proposed Raw Water Pump Station (City of Orange, 2009a).

Public Schools

Saddleback Valley Unified School District (SVUSD) provides public education within the City of Lake Forest. SVUSD is a school district with the fourth largest student population in Orange

County and provides services to a 92-square-mile area (SVUSD, 2010). Lake Forest Elementary is located one mile away from the Baker site and proposed pipelines at 21801 Pittsford Drive. La Madera Elementary is located two miles away at 25350 Serrano Road, and El Toro High School is located two miles away at 25255 Toledo Way.

Orange Unified School District provides public school services within the City of Orange. Within the vicinity of the Raw Water Pump Station, Chapman Hills Elementary is located one mile away at 170 Aspen Street. Santiago Canyon College is a two-year community college located approximately 1.5 miles from the proposed Raw Water Pump Station at 8045 E. Chapman Ave (City of Orange, 2009a).

Hospitals

Saddleback Memorial Medical Center is located at 24451 Health Center Drive in Laguna Hills and is five miles away from the Baker site and proposed pipelines. Chapman Medical Center is located at 2601 East Chapman Ave. and is approximately five miles from the proposed Raw Water Pump Station and OC-33.

Public Utilities

Water Facilities

The City of Lake Forest is served by the IRWD, El Toro Water District, and the Trabuco Canyon Water District. The proposed Baker WTP would be within IRWD's service area and would provide water to customers of IRWD and the partner water agencies. Thirty-five percent of IRWD's drinking water supply is imported from MWD, which as a water wholesaler gets its supplies from the Colorado River and the State Water Project. IRWD obtains 65 percent of its drinking water supplies from the local groundwater basin, which is managed by Orange County Water District (OCWD). IRWD's portion of the water produced at the proposed Baker WTP would be delivered to IRWD customers in the Serrano Highlands neighborhood adjacent to the Baker site and customers in other IRWD service areas.

The City of Orange obtains 55 percent of its potable water from local groundwater resources that are managed by OCWD and supplied by City-owned wells. The City also purchases 40 percent of its potable water from imported water sources as a member agency of the Municipal Water District of Orange County (MWDOC), which is a wholesale water district that receives imported water from MWD. Further, the City receives 3 to 5 percent of its potable water supply from the Serrano Water District, and small areas in southeastern Orange receive water from both IRWD and East Orange County Water District (City of Orange, 2009b).

Wastewater

Wastewater generated in the vicinity of the Baker site in the City of Lake Forest is conveyed to and treated at the Los Alisos Water Recycling Plant (LAWRP). LAWRP currently has a nominal dry weather treatment capacity of 7.5 mgd for reclaimed water production. Effluent that is not reclaimed to meet landscape and agricultural irrigation demands is sent to the South Orange

County Water Agency (SOCWA) outfall for secondary treatment and ocean disposal (City of Lake Forest, 2006).

The proposed project would not affect wastewater systems in the City of Orange or the County. Operation of the proposed Raw Water Pump Station and OC-33 would not generate wastewater.

Storm Water

The Orange County Flood Control District provides for the planning, development, operation, and maintenance of the flood control facilities on a Countywide basis. The proposed project components are located within both the San Diego Creek and Lower Santa Ana River Watersheds. The storm drain conveyance system at the project sites connect to local creeks, including Serrano Creek adjacent to the Baker site and proposed sewer pipeline and Santiago Creek near OC-33 and the proposed Raw Water Pump Station. Santiago Creek eventually drains to the Lower Santa Ana River and Serrano Creek eventually drains into Upper Newport Bay and the Pacific Ocean (City of Orange, 2009a; EDAW, 2010).

Solid Waste Management

The Orange County Integrated Waste Management Department (IWMD) owns and operates three public landfills in Orange County, California that accept municipal solid waste. These include Frank R. Bowerman Landfill in Irvine, which accepts commercial waste only; the Olinda Alpha Landfill in Brea, which accepts both public and commercial waste; and the Prima Deshecha Landfill in San Juan Capistrano, which also accepts both public and commercial waste. All three landfills are Class III (only accept non-hazardous municipal waste). Both Orange and Lake Forest are primarily served by the Prima Deshecha Landfill (Orange County, 2009).

Electricity and Natural Gas

Both the Baker site, Raw Water Pump Station site, and OC-33 are within the service area of the Southern California Edison Company (SCE), an electricity provider. SCE owns and operates the electric power delivery network and substations in its service area. A subsidiary of Edison International, SCE has 5,000 megawatts of generating capacity from interests in nuclear, hydroelectric, and fossil-fueled power plants. Individual businesses and communities within the service areas are able to have contracts with independent power generators, as allowed by the deregulation of the electric power industry (City of Lake Forest, 2006).

All project components are within the service boundary of the Southern California Gas Company, the largest natural gas utility in the Country. A subsidiary of Sempra Energy, the utility annually delivers approximately one trillion cubic feet of gas. Similar to electricity, gas customers in the project area have the option of purchasing their natural gas from a private gas supplier (City of Lake Forest, 2006).

3.11.2 Regulatory Framework

State

Protection of Underground Infrastructure

The California Government Code Section 4216-4216.9 “Protection of Underground Infrastructure” requires an excavator to contact a regional notification center (e.g., Underground Services Alert or Dig Alert) at least two days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call Underground Service Alert, the regional notification center for southern California. Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are then notified and are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area.

2005 California Energy Action Plan II

The California Energy Action Plan II is the state’s principal energy planning and policy document (California Energy Commission, 2005, 2008). The plan identifies state-wide energy goals, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California’s energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first priority actions to address California’s increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean and efficient fossil-fired generation is supported.

In 2002, California established its Renewable Portfolio Standard program,¹ with the goal of increasing the percentage of renewable energy in the state’s electricity mix to 20 percent by 2017. The California Energy Commission subsequently accelerated that goal to 2010, and further recommended increasing the target to 33 percent by 2020. Because much of electricity demand growth is expected to be met by increases in natural-gas-fired generation, reducing consumption of electricity and diversifying electricity generation resources are significant elements of plans to reduce natural gas demand.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (PRC, Division 30), enacted through AB 939 and modified by subsequent legislation, required all California cities and counties to

¹ The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country. By increasing the required minimum amount over time, the Renewable Portfolio Standard puts the electricity industry on a path toward increasing sustainability.

implement programs to reduce, recycle, and compost at least 50 percent of wastes by the year 2000 (PRC Section 41780). The state determines compliance with this mandate to “divert” 50 percent of generated waste (which includes both disposed and diverted waste) through a complex formula. This formula requires cities and counties to conduct empirical studies to establish a “base year” waste generation rate against which future diversion is measured.

3.11.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to aesthetic resources are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact if it would:

- Result in substantial adverse physical impacts associated with the provision of new or 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 times, or other performance objectives for any of the public services:
 - Fire protection;
 - Police protection;
 - Schools; and
 - Other public facilities.
- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require new or expanded water supply resources or entitlements;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider’s existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs;
- Not comply with federal, state, and local statutes and regulations related to solid waste; or
- Effect local and regional energy supplies such that additional electrical capacity is required.

Impacts Discussion

The following is a discussion of the potential effects of the proposed project to public services and utilities according to the key issue areas identified in Appendix G of the *CEQA Guidelines*.

Public Services

The proposed project does not include new government facilities associated with public services and would not result in the need for new public services facilities that could result in environmental impacts. The proposed project would construct new water treatment and distribution facilities that would not result in a need for substantial additional police and fire service. The proposed Baker WTP would require preparation of a Hazardous Materials Business Plan, Risk Management Plan, and Emergency Response Plan that would be submitted and kept on file with local emergency response providers. (See Section 3.7 Hazards and Hazardous Materials for additional information.) Local police and fire services may be required to service the proposed Baker WTP in the unlikely event of an emergency. However, this would not require the City of Lake Forest or Orange County to build new facilities to maintain response ratios, service ratios or other measures of performance. The proposed project would also not result in substantial adverse physical impacts to any local schools, hospitals, parks, or other public facilities because the project is not a direct population generator, such as a residential housing project that would result in impacts to these and other public facilities due to increased use. There would be no impact.

Wastewater Treatment Requirements and Capacity

The proposed project would not conflict with wastewater treatment requirements of the SARWQCB as it does not involve directly wastewater treatment facilities. Non-reclaimable wastewater (NRW) from the proposed Baker WTP would be conveyed to the IRWD sanitary sewer and treated at the LAWRP which has sufficient capacity to handle the waste stream. There would be no impact.

Water Supply and Infrastructure

Implementation of the proposed project would not require new or expanded water supply resources or entitlements. The proposed project would increase water supply reliability in southern Orange County by creating redundancy of treatment system capacity and operational flexibility in the raw water supply system. Water that is directed to the Baker WTP would be in place of water being directed to the Diemer Filtration Plant. No new entitlements would be necessary and there would be no impact.

The proposed project would result in the construction of new water treatment facilities, the effects of which are discussed throughout this EIR.

Storm Water Facilities

Impact 3.11-1: The proposed project could result in the expansion or construction of new storm water drainage facilities. (Less than Significant)

The proposed project would not result in the construction of new storm water drainage facilities or require the expansion of existing facilities. Although the proposed project could create new impervious surfaces at the proposed Baker WTP and proposed Raw Water Pump Station, the increase would not be substantially greater than existing conditions at either site and would not

substantially increase the volume of surface water runoff. An expansion of the existing storm drain system would not be required. Impacts would be less than significant.

Mitigation Measures

None required.

Solid Waste: Landfill Capacity

Impact 3.11-2: The proposed project could be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs. (Less than Significant)

Construction activities including demolition, site preparation, and excavation may require disposal of construction waste into local landfills. The cities of Lake Forest and Orange are primarily served by the Prima Deshecha Landfill in San Juan Capistrano. The landfill is permitted to accept up to 4,000 tons of waste per day and has approximately 699 acres permitted for refuse disposal. The landfill was opened in 1976 and is scheduled to close in approximately 2067 (Orange County, 2009). This landfill would be available to serve the proposed project during construction and operation. Impacts of the proposed project to landfill capacity would be less than significant.

Mitigation Measures

None required.

Solid Waste: Regulations

Impact 3.11-3: The proposed project would comply with federal, state, and local statutes and regulations related to solid waste. (Less than Significant)

The California Integrated Waste Management Act of 1989 (Public Resources Code [PRC], Division 30), enacted through Assembly Bill (AB) 939 and modified by subsequent legislation, requires all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by the year 2000 (PRC Section 41780) (CIWMB, 2009). Construction of the proposed project would generate solid waste, including excavated soil and demolition debris. The project would be subject to the California Waste Management Act. In addition, all exported waste material would be properly disposed of in an appropriate landfill. Impacts would be less than significant.

Prior to demolition of existing facilities at the Baker site and proposed Raw Water Pump Station site, IRWD would investigate the potential for hazardous materials (e.g., lead paint and asbestos) to have been incorporated into the original construction. If present, hazardous materials would be

removed by a specialty contractor prior to the general demolition. Hazardous waste materials would be handled and disposed in compliance with applicable regulations. Impacts would be less than significant.

Mitigation Measures

None required.

Energy Use

Impact 3.11-4: The proposed project could affect local and regional energy supplies such that additional electrical capacity is required. (Less than significant)

The new treatment facilities at the Baker WTP and Raw Water Pump Station would increase energy demand by approximately 26,700 mega-watt hours per year. Electricity would be provided to both sites by Southern California Edison (SCE). The facility would be connected to the existing grid infrastructure connected to both sites. No off-site improvements would be necessary to provide the energy to operate both facilities at full capacity. The project would result in a less than significant impact to regional energy capacity. In addition, the proposed project would treat water at the Baker WTP instead of the existing Diemer Treatment Plant and would effectively redistribute the current energy used to treat the water.

Mitigation Measures

None required.

References – Public Services and Utilities

California Energy Commission, *Energy Action Plan II, Implementation Roadmap for Energy Policies*, Prepared by State of California, Energy Commission and Public Utilities Commission, September 21, 2005.

California Energy Commission, *2008 Energy Action Plan Update*, Prepared by State of California, Energy Commission and Public Utilities Commission, February 2008.

California Integrated Waste Management Board, Solid Waste Information System, website <http://www.ciwmb.ca.gov/SWIS>, accessed December 2008.

California Integrated Waste Management Board, Local Government Central – Enforcement, 2009. Available online at: <http://www.ciwmb.ca.gov/LGCentral/Enforcement/>.

City of Lake Forest, *General Plan*, June 21, 1994. Available online at: http://www.city-lakeforest.com/depts/ds/planning/plan_docs/default.asp

City of Lake Forest, *City of Lake Forest Opportunities Study Program EIR*, 2006.

City of Orange, *General Plan Draft Environmental Impact Report*, February, 2009a. Available online at: <http://www.edaw.com/orange/library.htm#EXLU>.

City of Orange, *General Plan*, January 2009B

EDAW, Inc., *Program Environmental Impact Report, City of Orange General Plan*, State Clearinghouse # 2006031117, Prepared for City of Orange, Community Development Department, March 2010.

Orange County, California, *Prima Deshecha Landfill*, 2009. Available online at: <http://egov.ocgov.com/ocgov/Info%20OC/Departments%20&%20Agencies/OC%20Waste%20&%20Recycling/Landfill%20Information/Orange%20County%20Landfills/Prima%20Deshecha%20Landfill>, accessed March 4, 2009.

Orange County Fire Authority (OCFA), *About OCFA*, 2010. Available online at: <http://www.ocfa.org/>

Saddleback Valley Unified School District (SVUSD), *Schools*. Available online at: <http://www.svusd.k12.ca.us/schools.asp>

3.12 Transportation and Traffic

This section addresses potential traffic and circulation impacts on the basis of information supplied by the Orange County Transportation Authority (OCTA), the City of Lake Forest General Plan and EIR, the City of Orange General Plan and EIR, the County of Orange General Plan, the City of Lake Forest's Opportunities Study Program EIR and the Lake Forest Municipal Code.

3.12.1 Environmental Setting

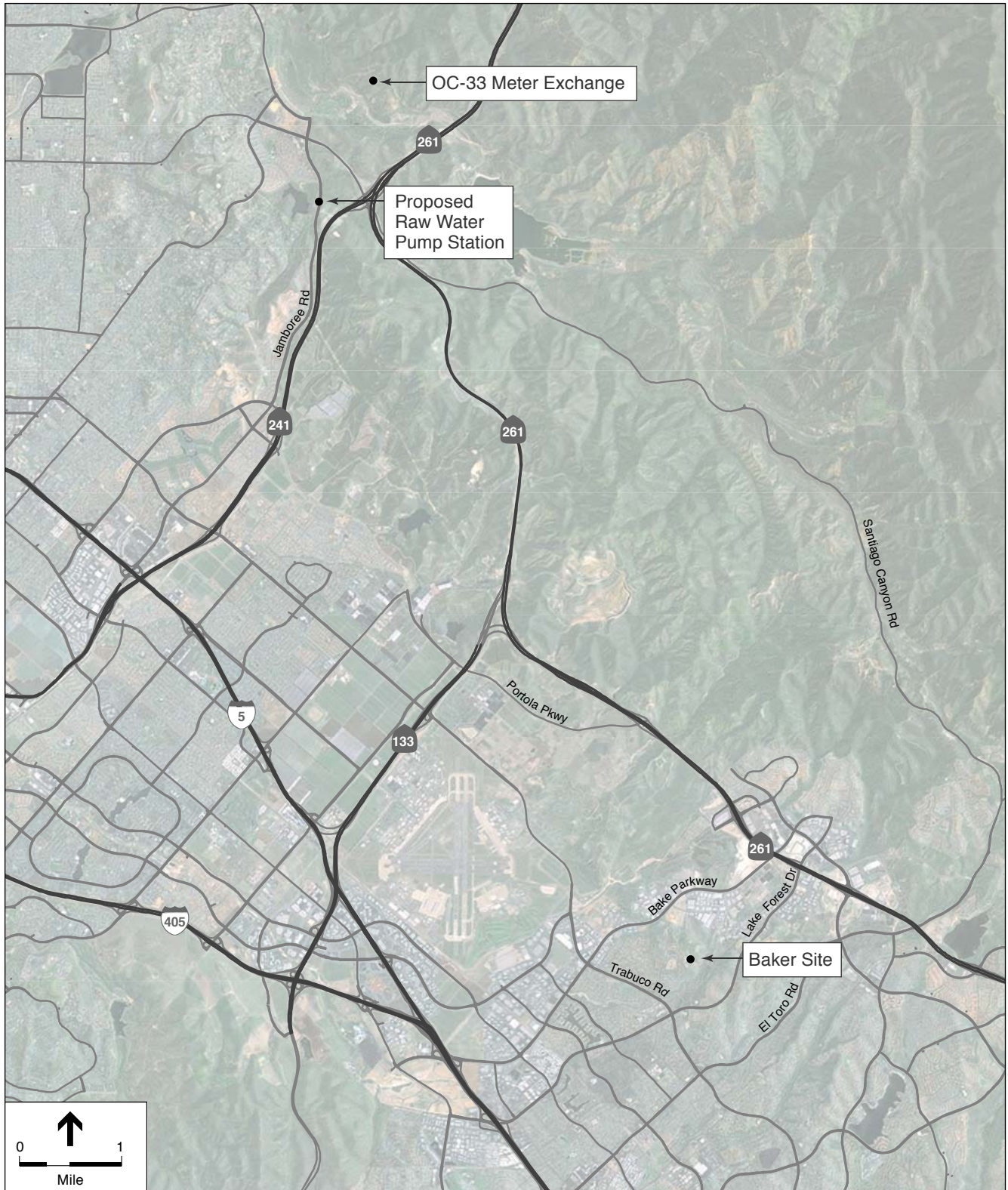
Regional Setting

The proposed project is located within the cities of Lake Forest and Orange in southern Orange County, California. The transportation system within both cities is comprised of an interconnected network of roadways, local transit systems, and pedestrian and bicycle facilities. Interstate 5 (I-5) provides regional connectivity throughout Orange County and also provides interregional connections to both northern and southern California. Interstate 405 (I-405) merges with I-5 just west of the Baker site and also provides regional connectivity to northern California. State Route 241 (SR 241) parallels I-5 and connects the Eastern Toll Road outside of Irvine with Oso Parkway near Mission Viejo. State Route 261 (SR 261) connects I-5 with State Route 241. A series of major arterial roads within the community connect to collector roads that function to link neighboring land uses. **Figure 3.12-1** shows regional highways and arterial roads in the vicinity of the proposed project.

Interstate 5 (I-5) is a 10-lane freeway providing the primary regional access to the project area, including the cities of Lake Forest and Orange. In the vicinity of the proposed Baker WTP, I-5 has southbound and northbound on- and off-ramps at Lake Forest Drive and El Toro Road in Lake Forest. At Lake Forest, there is both a southbound direct on-ramp and a loop on-ramp. At El Toro Road, there are both northbound and southbound direct and loop onramps. I-5 has auxiliary lanes on the northbound and southbound directions between Lake Forest Drive and El Toro Road (City of Lake Forest, 2006).

Interstate 405 (I-405) is a major north-south Interstate Highway that provides regional access to the project area, running along western Orange County in the vicinity of the proposed Baker WTP, I-405 has an on- and off-ramp at Bake Parkway where I-405 merges with I-5.

State Route 241 (SR-241) a four-lane tollway providing the primary regional access to the project area on the north end of Lake Forest and east end of Orange. SR-241 is a 12-mile tollway in Orange County that runs parallel to I-5 and connects the Eastern Toll Road outside of Irvine with Oso Parkway near Mission Viejo. In the vicinity of the proposed Baker WTP, SR-241 has southbound and northbound on- and off-ramps at Alton Parkway and at Portola Parkway; as well as a northbound on-ramp and southbound off-ramp at Lake Forest Drive. There are auxiliary lanes in the northbound and southbound direction between Lake Forest city limits and Bake Parkway. In the vicinity of the Raw Water Pump Station in Orange, SR-241 has southbound and northbound on- and off- ramps at East Santiago Canyon Road (City of Lake Forest, 2006).



SOURCE: ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 3.12-1
Regional Roadways

State Route 261 (SR-261) is a north-south toll facility on the eastern edge of the City of Orange. This facility provides a connection between I-5 and SR-241. SR-261 has four toll lanes and provides regional access to the Raw Water Pump Station through a southbound on- and off- ramp at East Santiago Canyon Road (City of Lake Forest, 2006).

Local Roadways

El Toro Road is a nine-lane north/south commercial street from I-5 to Rockfield Boulevard, then an eight-lane commercial street to Muirlands, then a six-lane divided major arterial from Trabuco north to the city limit. El Toro Road provides regional access to the project traffic. It serves as a major commuter route between I-5 and SR-241 (City of Lake Forest, 2006).

Bake Parkway is a north/south six-lane divided major arterial from I-405 to Trabuco, then a four-lane divided primary arterial from Trabuco to Rancho Parkway (City of Lake Forest, 2006).

Lake Forest Drive is a north/south commercial street from I-5 to Muirlands, then a six-lane divided major arterial from Muirlands to Trabuco Road, then a four-lane divided primary arterial from Trabuco Road to Rancho Parkway, then a commercial street from Rancho Parkway to Portola Parkway (City of Lake Forest, 2006).

Trabuco Road is an east/west six-lane divided major arterial that runs parallel to and between I-5 and SR-241. Trabuco Road intersects Bake Parkway, Lake Forest Drive and El Toro Road in the vicinity of the Baker site (City of Lake Forest, 2006).

Muirlands Boulevard is an east/west four-lane divided primary arterial that runs parallel to I-5. Muirlands Boulevard intersects Bake Parkway, Lake Forest Drive and El Toro Road in the vicinity of the Baker site (City of Lake Forest, 2006).

Jamboree Road is a northeast/southwest street and is one of the major roads in Orange County, running from just west of Irvine Lake, all the way south to Pacific Coast Highway. The Raw Water Pump Station is immediately adjacent to Jamboree Road near the intersection of Jamboree and Canyon View Avenue.

Traffic Volumes and Levels of Service

The City's of Lake Forest and Orange provide information relating to intersection and roadway operation as well as Average Daily Traffic (ADT) throughout the city. Level of Service (LOS) measurements are utilized to describe traffic operations with a scale ranging from LOS A to LOS F. LOS A indicates very good, free flow traffic conditions where LOS F indicates very poor, forced flow conditions. **Tables 3.12-1 to 3.12-3** describe the ADT and LOS measurements through roadways, intersections, and highways within the vicinity of the project sites.

**TABLE 3.12-1
 EXISTING ROADWAY ADT VOLUMES IN THE PROJECT AREA**

Roadway	ADT	LOS
City of Lake Forest		
Bake (Between Trabuco and Commercentre)	43,000	N/A
Trabuco (Between Bake and Lake Forest)	23,000	N/A
Lake Forest (Between Trabuco and Dimension)	34,000	N/A
City of Orange		
Jamboree Road (Canyon View Ave – South City Limits)	17,600	A
Canyon View Avenue (Jamboree Road – Newport Boulevard)	5,200	A

ADT = Average Daily Traffic; LOS = Level of Service.

SOURCE: Austin-Foust Associates, Inc. 2005b; City of Orange, 2009.

**TABLE 3.12-2
 INTERSECTION SERVICE LEVELS IN THE VICINITY OF THE BAKER WTP**

Loc. # North / South Road at East / West Road	AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS
Lake Forest Drive & Trabuco	0.74	C	0.74	C
Bake Parkway & Trabuco ^a	0.95	E	0.81	D

ICU = Intersection Capacity Utilization; LOS = Level of Service.

SOURCE: Austin-Foust Associates, Inc. 2005b.

Public Transportation

The cities of Lake Forest and Orange are both served by Metrolink train service and OCTA bus service. Metrolink is a commuter rail service operated by the Southern California Regional Rail Authority. Multiple stops during the morning and evening commuting period are provided at stations located in Irvine, Laguna Niguel, Tustin and San Juan Capistrano. The nearest train stations are approximately four miles from the Baker site in the City of Irvine and approximately seven miles from the Raw Water Pump Station and OC-33 site in the City of Tustin.

Most major streets within Lake Forest and Orange have bus service available. Streets that contain bus routes in the vicinity of the Baker site include Bake Parkway and Commercentre Drive (bus route 206), Lake Forest Drive (bus route 177), and Trabuco Road (bus routes 203, 205, and 216)

**TABLE 3.12-3
 HIGHWAY SERVICE LEVELS IN THE VICINITY OF THE BAKER WTP**

Location	Direction	Lanes	Peak Hour Capacity	AM Peak Hour				PM Peak Hour			
				Volume	V/C	V/C LOS	Caltrans LOS ^a	Volume	V/C	V/C LOS	Caltrans LOS ^a
I-5 n/o Lake Forest	NB	8 + 2H	19,500	14,300	.73	D	F ^a	10,350	.53	C	E
	SB	8 + 2H	19,500	10,230	.52	C	E	13,660	.70	C	F
I-5 n/o El Toro	NB	6+2H	15,500	13,520	.87	D	F ^a	10,010	.65	C	E
	SB	6+2H	15,500	8,880	.57	C	E	12,210	.79	.D	F
SR-241 n/o Portola East	NB	3	6,000	4,360	.73	D	D	1,010	.17	A	B
	SB	3	6,000	830	.14	A	B	3,030	.51	C	D
SR-241 n/o Lake Forest	NB	3	6,000	4,590	.77	D	D	1,440	.24	A	B
	SB	2	6,000	1,300	.22	A	B	3,290	.55	C	D

^a Caltrans LOS values are from speed and travel time surveys carried out by Caltrans as summarized in the 2003 Orange County Congestion Management Program. The measured speeds in each segment reflect queue build-up from a downstream deficient segment and/ or other prevailing conditions at the time the surveys were conducted. The superscript values for LOS "F" (i.e., 0, 1, 2 and 3) represent different lengths of time during which congested conditions occur in the peak period.

H = High-occupancy vehicle lane, LOS = Level of service, V/C = Volume/capacity ratio, NB = Northbound, SB = Southbound

SOURCE: Austin-Foust Associates, Inc. 2005b

(Lake Forest, 2008). Streets that contain bus routes in the vicinity of the Raw Water Pump Station and OC-33 include Chapman Avenue, Jamboree Road, E. Santiago Canyon Road, and Newport Blvd (bus route 54) (OCTA, 2010)

Bicycle and Pedestrian Transportation

The cities of Lake Forest and Orange contain an extensive trail system that includes pedestrian and bike trails within open space corridors and along regional trails. The County maintains a coordinated system of trails, including bikeways, equestrian trails and hiking trails within the cities. Bikeways comprise the most extensive part of the cities' trail network. The biking network in Lake Forest and Orange connects with other trails and paths in adjacent communities and throughout Orange County. The three categories of bikeways are:

- Class I: a paved path that is separate from any motor vehicle travel lane;
- Class II: a restricted lane within the right-of-way of a paved roadway for the exclusive or semi-exclusive use of bicycles; and
- Class III: a bikeway that shares the street with motor vehicles or the sidewalk with pedestrians.

The City of Lake Forest contains 12 bike paths. The closest bike paths to the Baker site include three Class II Bikeways located along Bake Parkway, Lake Forest Drive, and Trabuco Drive.

The City of Orange contains 10.6 miles of Class I bike paths, 20.8 miles of Class II bike lanes, and 3.3 miles of Class III bike routes. In the vicinity of the Raw Water Pump Station and OC-33, there is one existing Class II bike path along Jamboree Road. There are also two proposed bike paths, one Class I bike path along Jamboree Road and one Class II bike path along Canyon View Road.

3.12.2 Regulatory Framework

The development and regulation of the transportation network in the vicinity of the proposed project primarily involves state and local jurisdictions. All roads within the project area are under the jurisdiction of state and local agencies. Applicable state and local laws and regulations related to traffic and transportation issues are discussed below.

State

California Department of Transportation (Caltrans)

Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. The project area includes four roadways that fall under Caltrans' jurisdiction: I-5, I-405, SR-241, and SR-261.

Caltrans' construction practices require temporary traffic control planning "during any time the normal function of a roadway is suspended" (FHWA, 2003). In addition, Caltrans requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbance (Caltrans, 2004).

Local

Orange County Congestion Management Plan

The Congestion Management Plan (CMP) requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System (HS). Per the CMP guidelines, this number is based on the desire to analyze any impacts that will be 3 percent or more of the existing CMP highway system facilities' capacity. The CMPHS includes specific roadways, which include State Highways and Super Streets, which are now known as Smart Streets, and CMP arterial monitoring locations/intersections. Therefore, the CMP traffic impact analysis (TIA) requirements relate to the potential impacts only on the specified CMPHS. The CMP highway system arterial facilities and CMP arterials in the vicinity of the proposed project include Irvine Boulevard/Trabuco Road and El Toro Road. The CMP arterial monitoring locations/intersections in the vicinity of the project area include Trabuco Road/El Toro Road, El Toro Road/I-5, and within the Extended Study Area, Moulton Parkway/El Toro Road and Irvine Boulevard/SR-133.

Orange County Commuter Bikeways Strategic Plan

The Orange County Transportation Authority (OCTA) adopted the 2009 Commuter Bikeways Strategic Plan (CBSP) on May 22, 2009 to encourage the enhancement of Orange County's regional bikeways network, in order to make bicycle commuting a more viable and attractive travel option. The CBSP is intended to create a comprehensive blueprint of the existing bikeways in the county, as well as propose new facilities to complete a network of bikeways. The projects described in the CBSP are a compilation of projects planned by Orange County Cities and the County of Orange. The CBSP is a long range, financially unconstrained planning document.

City of Lake Forest General Plan (1994)

The City of Lake Forest General Plan addresses transportation, traffic, and public transportation in the Circulation Element. The following General Plan goals and policies are relevant to the proposed project:

Goal 1.0 Support for the development of an efficient network of regional transportation facilities.

Goal 2.0 A system of roadways in the community that meets local needs.

Policy 2.1 Provide and maintain a City circulation system that is in balance with planned land uses in Lake Forest and surrounding areas in the region.

Policy 2.3 Improve the Lake Forest circulation system roadways in concert with land development to ensure adequate levels of service.

Goal 5.0 Convenient and suitable parking facilities for motorized and non motorized vehicles.

Policy 5.1 Require sufficient off street parking for all land uses and maximize the use of parking facilities in Lake Forest.

City of Lake Forest Municipal Code

Guidelines and provisions related to traffic and circulation are addressed in Chapter 12 (Vehicles and Traffic) of the City Municipal Code.

Chapter 12.04 General Provisions and Administration

Section 12.04.020 (Sec 6-4-202) Duties of Traffic Engineering

It shall be the general duty of Traffic Engineering to determine the installation, design, operation, and maintenance of traffic-control devices, design and/or review traffic flow systems and appurtenances, conduct engineering analyses of traffic accidents; devise remedial measures; conduct engineering and traffic investigations of traffic conditions. Traffic Engineering shall also cooperate with the California Highway Patrol, the Orange County Sheriff's Department, the Orange County Fire Authority, and other agencies as appropriate in the development of ways and means to improve traffic conditions and carry out the additional duties imposed by the ordinances of the City.

City of Orange General Plan (2009)

The draft City of Orange General Plan addresses transportation and traffic in the Circulation Element. The following General Plan goals and policies are relevant to the proposed project:

Goal 1.0 Provide a safe, efficient, and comprehensive circulation system that serves local needs, meets forecasted demands, and sustains quality of life in neighborhoods.

Policy 1.3 Consider various methods to increase safety on City Arterials and neighborhood streets, including landscaping, provisions of bike/transit lanes, and consideration of traffic calming on neighborhood streets in accordance with the City's Neighborhood Residential Traffic Management Program.

Goal 4.0 Provide efficient and accessible modes of pedestrian, bicycle, and equestrian transportation and improved facilities and amenities.

Policy 4.1 Create a comprehensive bicycle network that is integrated with other transportation systems by establishing complementary on-street and off-street facilities as identified in the City of Orange Bikeways Master plan and OCTA Commuter Bikeways Strategic Plan, including Santiago Creek, the Santa Ana River, and the Tustin Branch Trail.

3.12.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR and consistent with Appendix G of the *CEQA Guidelines*, a project that would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system is considered to have a significant impact on the environment. The project is also considered to have a potentially significant impact if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- 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.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Impacts Discussion

The following is a discussion of the potential effects of the proposed project to traffic and circulation according to the key issue areas identified in Appendix G of the *CEQA Guidelines*.

Public Transportation

The project area includes public transit systems, such as bus and rail systems, and bike paths. The City of Orange and City of Lake Forest General Plans include alternative transportation-related goals and policies pertaining to long-term land use and transportation planning. As project construction activities would be temporary, long-term transportation policies and plans would not be affected. Construction of Option 1 of the treated water pipeline is the only project component that would directly affect roadways. Construction of the pipeline in and around Peachwood, Wisteria, and Marin would not affect bus routes or bikeways. These roadways currently are not designated bikeways and are not segments of a bus route. The only roads in the vicinity of the Baker site that contain bus and bike routes include: Trabuco Road, Commercenter Drive, Bake Parkway, and Lake Forest Drive. The closest bike paths in the vicinity of the Raw Water Pump Station and OC-33 include Jamboree Road and Canyon View Avenue. Bus routes in the vicinity of the Raw Water Pump Station include Chapman Avenue, Jamboree Road, E. Santiago Canyon Road, and Newport Blvd. Construction and of the proposed Raw Water Pump Station and OC-33 would not directly affect any roadway or cause lane closures that would affect bus routes or bike paths in the project vicinity. Therefore, no impacts would occur.

Air Traffic

The proposed Baker WTP, treated water pipeline, and sewer pipeline would be located approximately two miles southeast of the Marine Corps Air Station (MCAS) El Toro. The proposed Raw Water Pump Station would be approximately 10 miles north of MCAS El Toro, while OC-33 would be 11 miles north. The air station was decommissioned in 1999. Therefore, construction and operation of the proposed project would not affect air traffic patterns at the air station. There would be no impact.

Traffic Load and Circulation

Impact 3.12-1: Construction and operational activity would affect traffic in the project area. (Less than Significant with Mitigation)

During project construction, construction vehicles could result in short-term, intermittent lessening of roadway capacities due to slower moving vehicles, and the larger turning radii of trucks (as compared to passenger vehicles). Traffic-generating construction activities would consist of the daily arrival and departure of construction workers, trucks hauling equipment and materials to and from the construction site, and the hauling of excavated soils. Construction vehicles would access the Baker WTP site from Biscayne Bay Drive to the north on a paved road

that currently traverses the undeveloped site. Construction equipment used for the proposed Baker WTP would include a dozer, a front end loader, a scraper, and three haul/dump trucks. Construction equipment used for the proposed treated water pipeline and sewer pipeline would include a backhoe, a front end loader, and a haul truck. Although some smaller vehicles (e.g., IRWD staff vehicles) traffic may access the site from Wisteria Lane, the majority of the construction traffic would be from the north. As a result, impacts to traffic and circulation from construction vehicles accessing the Baker site would be less than significant.

Construction equipment used for the proposed Raw Water Pump Station would include a dozer, a haul truck, and a front end loader. Construction vehicles would access the Raw Water Pump Station site without affecting local roadways.

Construction activities for pipeline Option 2 may require closure of lanes of traffic in Peachwood Road. In addition, both pipeline options would bisect Marin, a small private road off Wisteria. Implementation of Mitigation Measure TR-1, requiring a Traffic Control/Traffic Management Plan, would ensure that construction activities would not significantly affect local access on these roads. Construction on the public streets would be between 9:30am and 3:00pm on arterials and 7:30am and 5:00pm on local streets.

Once constructed, access to the Baker WTP would be from Biscayne Bay Drive to the north and Wisteria to the south. If and when the planned future development north of the Baker site is completed, the northern access point to the Baker WTP would be Indian Ocean Avenue instead of Biscayne Bay Drive (see Figure 2-5). On average, operational traffic would include up to three worker entries per day and up to 20 deliveries per month. Access from Wisteria requires a 90-degree turn onto the plant property. This access point is feasible for some delivery trucks and IRWD staff vehicles; the entry point for large deliver trucks would be from the north. Due to the limited number of trips associated with operations of the plant, traffic and circulation on Biscayne Bay Drive and Palmwood/Wisteria would not be significantly impaired. Similarly, vehicle trips to the Raw Water Pump Station would not exceed one or two per week. Operations of the pump station would not adversely affect local traffic and circulation. Operation and maintenance requirements at OC-33 would not change due to the proposed meter exchange and pipeline replacement. There would be no impact to local traffic or circulation due to operational vehicle trips to OC-33.

Mitigation Measures

TR-1: For installation of Pipeline Option 1 and 2, the construction contractor shall prepare and implement a Traffic Control/Traffic Management Plan prior to construction. The plan shall:

- Identify hours of construction and hours for deliveries;
- Include a work area delineation requiring traffic control and flagging;
- Identify all access and parking restrictions, pavement markings and signage requirements (e.g., speed limit, temporary loading zones);

- Maintain access to residence and business driveways, public facilities, and recreational resources at all times to the extent feasible; Minimize access disruptions to businesses and residences;
- Notify affected residents and businesses prior to the start of construction.;
- Include a plan to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities.

Significance after Mitigation: Less than significant.

Level of Service Standards

Impact 3.12-2: Implementation of the proposed project could exceed a level of service standard established by the Orange County Transportation Authority. (Less than Significant)

The OCTA is the designated Congestion Management Agency for Orange County. The OCTA prepares the Orange County Congestion Management Program (CMP), the goals of which are to reduce traffic congestion and provide a mechanism for coordinating land use and development decisions (OCTA, 2003). The CMP identifies cost-effective improvements and strategies for mitigation of performance problems within the CMP. The CMP is defined as a network of state highways and arterials, LOS standards and related procedures, and provides technical justification for the approach. LOS standards for roadways that are part of the Orange County CMP network are intended to regulate long-term traffic increases resulting from the operation of new development, and do not apply to temporary construction projects. Therefore, for the proposed project, temporary construction-generated traffic would not result in any long-term degradation in operating conditions or LOS on any nearby roadways. There would be no impact.

Operation of the Baker WTP would require frequent deliveries of chemicals, as listed in Table 2-1 in the Project Description, and vehicle trips associated with operation and maintenance (O&M) vehicles. Deliveries would generate a total of approximately 20 truck trips per month, while O&M vehicles would generate approximately three trips per day. However, this number is negligible compared to the existing ADT estimate for the surrounding roadways such as Bake Parkway (43,000 ADT), Lake Forest Drive (34,000 ADT), and Trabuco Avenue (23,000 ADT). Thus, the frequency and number of trucks for scheduled deliveries would not be great enough to result in degradation of traffic conditions or LOS on local roadways. The Raw Water Pump Station would be operated and monitored remotely using a SCADA system; there would be no additional O&M vehicle trips to operate the Raw Water Pump Station. Impacts would be less than significant. There also would be no additional O&M vehicle trips to operate OC-33 relative to existing conditions.

Mitigation Measures

None required.

Incompatible Use

Impact 3.12-3: The proposed project could substantially increase hazards due to a design feature or incompatible use. (Less than Significant with Mitigation)

The proposed project involves construction and operation of water utility infrastructure and related facilities. The proposed project does not include the construction or design of any roadway infrastructure that would cause a safety risk to vehicle operations. Operation of the proposed project would require regular monthly deliveries of hazardous materials to the Baker WTP. Delivery trucks would access the Baker WTP via surrounding residential streets including Commercentre Drive, Biscayne Bay, Wisteria Lane, Palmwood Avenue, and a shared access road on Indian Ocean Drive. However, deliveries would not be frequent enough to increase hazards and cause degradation to streets (e.g., pot holes). The hazardous materials delivery trucks would be regulated by Caltrans. As described in Section 3.7 Hazards and Hazardous Materials, chemical delivery vehicles would utilize state roadways approved by Caltrans for hazardous material transport (e.g., I-5 and SR-241). The City of Lake Forest does not designate which city streets can or cannot be used for hazardous material transport. Local roadway design is sufficient to accommodate the size and width of delivery trucks. Therefore, hazardous materials deliveries would not be an incompatible use. There would be no impact.

Depending on the alignment chosen for the treated water pipeline, construction activities could affect a small portion of Peachwood Avenue where the pipeline would connect to the South County Pipeline and a portion of private roadways such as Wisteria and Marin (Figure 2-2). These activities would introduce construction equipment and oversized vehicles in and around these roadways that would potentially increase hazards to passing motorists. Trucks slowing and turning from Peachwood Avenue could affect traffic and create traffic hazards. Implementation of a Traffic Control Plan, as described in Mitigation Measure TR-1, would minimize hazards to motorists and ensure that turning lanes and site access plans are implemented. Wisteria and Marin are private roads owned by the Serrano Highlands Homeowners Association (HOA). Mitigation Measure TR-2 would require IRWD to obtain an easement from the HOA for any pipelines to be installed within Wisteria or Marin or otherwise on any private property. The remaining construction activities would take place off-road and would therefore not increase roadway hazards. Impacts would be less than significant with mitigation.

Mitigation Measures

Implement **Mitigation Measure TR-1**.

TR-2: IRWD shall obtain the necessary road encroachment permits or easements prior to construction and would comply with the applicable conditions of approval.

Significance after Mitigation: Less than significant.

Emergency Access

Impact 3.12-4: The proposed project could result in inadequate emergency access. (Less than Significant with Mitigation)

The proposed Baker WTP, treated water pipeline, and sewer pipeline are two miles from Orange County Fire Station #19, which is located at 23022 El Toro Road in the City of Lake Forest. Construction activities associated with the treated water pipeline could result in temporary lane closures of residential streets, including Wisteria, Marin, and Palmwood Avenue. Per Mitigation Measure TR-1, IRWD would require the construction contractor to prepare a Traffic Control Plan that would require emergency access to be maintained for the duration of construction activities. In addition, Mitigation Measure TR-3 would ensure that local emergency service providers are informed of lane/road closures and detours. Impacts would be less than significant with mitigation.

The proposed Raw Water Pump Station is one mile from the nearest City of Orange Fire Station, which is located at 7401 E. Fort Road. Construction and operation of the proposed pump station would not result in temporary roadway or lane closures on local roadways within or around Peters Canyon Regional Park. There would be no impact to emergency access due to the proposed Raw Water Pump Station.

The OC-33 site is approximately one mile from the OCFA Fire Station #7, located at 8501 E. Fort Road in the City of Orange. Construction and operation of the proposed meter exchange and pipeline replacement would not result in temporary roadway or lane closures on local roadways within or around Irvine Regional Park. There would be no impact to emergency access due to the proposed OC-33 Meter Exchange.

Mitigation Measures

Implement **Mitigation Measure TR-1**.

TR-3: During construction of the treated water pipeline, IRWD shall require that the construction contractor notify the responsible law enforcement agencies and fire department two weeks prior to the start of work as to when and where construction would begin and end, and shall coordinate their emergency access plans and procedures accordingly.

Significance after Mitigation: Less than significant.

References – Transportation and Traffic

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CHAPTER 4

Cumulative Impacts

4.1 CEQA Analysis Requirements

A cumulative impact is created as a result of the combination of the project evaluated in an EIR together with other projects causing related impacts. The *CEQA Guidelines* require that EIRs discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects.¹ According to *CEQA Guidelines* §15130(a) and (b), the purpose of this section is to provide a discussion of significant cumulative impacts which reflects "the severity of the impacts and their likelihood of occurrence." The *CEQA Guidelines* indicate that the discussion of cumulative impacts should include:

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

The analysis of cumulative effects in this chapter focuses on the effects of concurrent construction of the proposed project with other spatially and temporally proximate projects. As such this analysis relies on a list of projects that have the potential to contribute to cumulative impacts in the project area.

4.2 Related Projects

4.2.1 Geographic Scope

Cumulative impacts are assessed for related project within a similar geographic area. This geographic area may vary, depending upon the issue area discussed and the geographic extent of the potential impact. For example the geographic area associated with construction noise impacts is limited to areas directly adjacent to construction sites, whereas the geographic area that is

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

affected by construction-related air emissions may include the larger airshed. Construction impacts associated with increased noise, dust, erosion, and access limitations tend to be localized and could be exacerbated if other development or improvement projects are occurring within the same or adjacent locations as the proposed project.

Geographically, the proposed project is located in eastern Orange County along the foothills of the Cleveland National Forest, approximately 14 miles east of the Pacific Ocean. For the purposes of this analysis, related projects within a five-mile radius around the project site were considered when evaluating potential cumulative impacts due to construction of the proposed project. The projects determined to be relevant to the analysis of cumulative impacts for the proposed project are listed in **Table 4-1** and are identified in **Figure 4-1**.

4.2.2 Project Timing

As noted above, projects considered in this analysis include those that have recently been completed, are currently under construction, or are in planning. Schedule is particularly relevant to the consideration of cumulative construction-related impacts, since construction impacts tend to be relatively short-term. However, for future projects, construction schedules are often broadly estimated and can be subject to change. Although the timing of the future projects listed in Table 4-1 are likely to fluctuate due to schedule changes or other unknown factors, this analysis assumes these projects would be implemented concurrently with construction of the proposed project between 2011 and 2012.

4.2.3 Type of Projects Considered

As described in Chapter 3 of this EIR, the majority of impacts associated with implementation of the proposed project are short-term and related to construction, rather than long-term project operation. Therefore, the project could contribute to cumulative effects when considered in combination with impacts of other construction projects in the project area. For this analysis, other past, present, and reasonably-foreseeable future construction projects, particularly other infrastructure, commercial, civic, and residential development projects in the area have been identified. Long-term cumulative impacts of the project in conjunction with the other projects in the area are assessed as well.

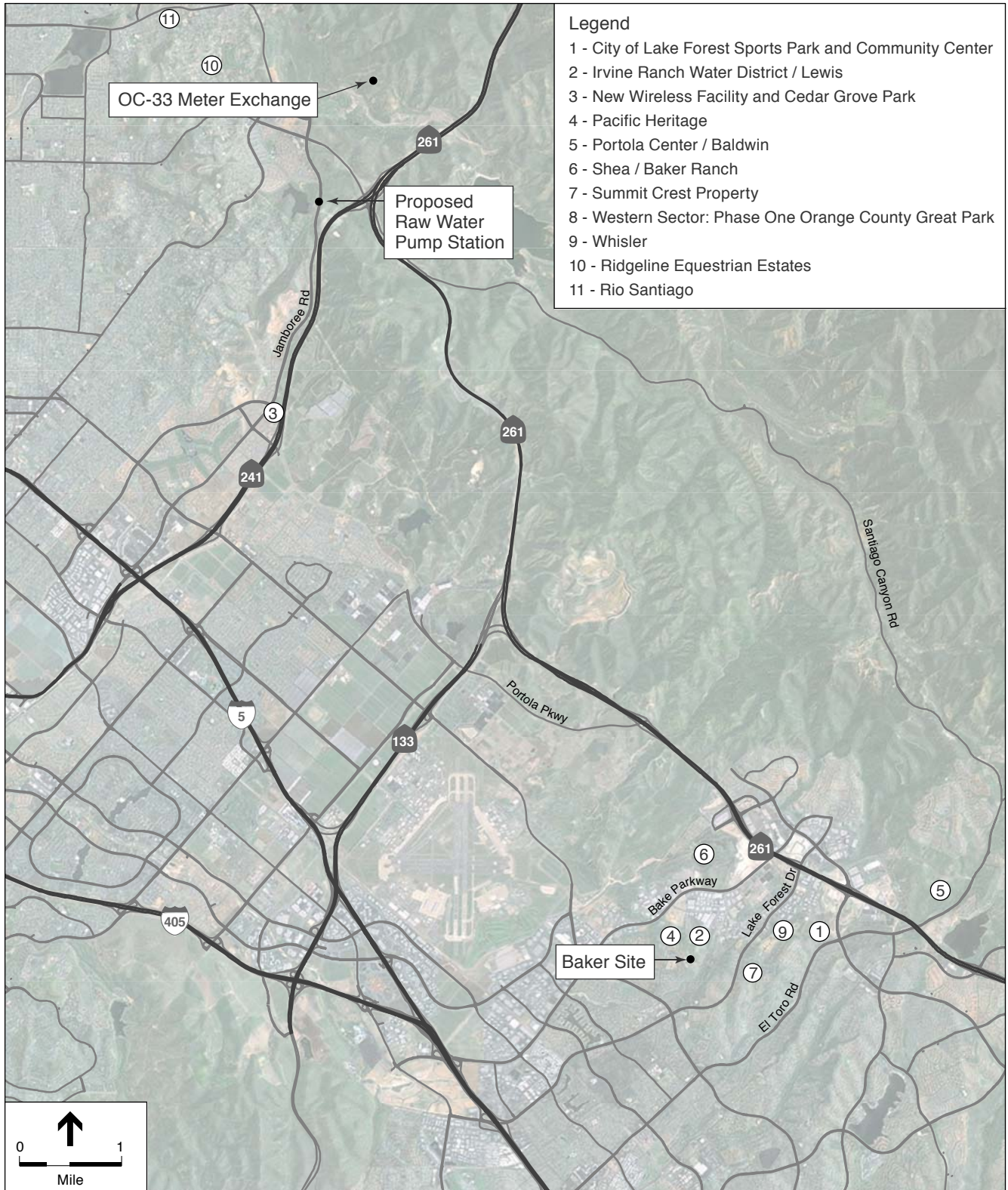
4.2.4 Description of Cumulative Projects

Table 4-1 lists current and proposed projects that could potentially contribute to cumulative impacts within the project area. In addition to the projects listed in Table 4-1, additional development that has not been identified as of this time, could occur within the project area, as planned by the City of Lake Forest, City of Orange, City of Irvine, and the City of Tustin.

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

Planning Jurisdiction	Project	Location
City of Lake Forest	<p>City of Lake Forest Opportunity Study</p> <ul style="list-style-type: none"> • Shea/Baker Ranch-Total area of 387 acres including 25 acres of park. The planned uses include 2,815 homes, mixed uses, and neighborhood parks. Land Use applications pending submittal January 2011 • Portola Center/Baldwin- Total area of 243 acres including 13 acres of park. The planned uses include 930 homes, sports park, neighborhood park, and commercial development. Land Use application in process. • Irvine Ranch Water District/Lewis- Total area of 82 acres including 3 acres of park. The planned uses include 833 homes, 9 acres reserved for Lake Forest civic center. Land Use application in process – public hearings anticipated fall 2010. • Whisler- Total area of 13 acres. The planned uses include 75 single family homes. Land Use application in process – approval anticipated fall 2010. • Pacific Heritage-Total area of 18 acres. The planned uses include 85 single-family homes. Land Use application pending submittal • City of Lake Forest Sports Park and Community Center- Total area of 45 acres. The planned uses include a sports park and community/civic center. Fully constructed. <p>Summit Crest Residential Development- Includes the development of 29 single family homes on six acres. Building permits issued.</p>	<p>Lake Forest (See Figure 4-1)</p> <p>Osterman Rd and Monterra Rd, Lake Forest (See Figure 4-1)</p>
City of Irvine	<p>Western Sector of the Orange County Great Park Phase One- Total area of 200 acres. The planned uses include 100 acre park, Kids Rock interpretive playground, the Palm Court & Squadron Complex for special events and exhibitions, structural improvements to Hangar 244, a 1.5-acre Community Garden, A 14-acre Picnic Meadow, and the improvements to C Street.</p>	<p>Orange County Great Park, Irvine, CA</p>
City of Orange	<p>Ridgeline Equestrian Estates – Total of 51 acres. The planned uses include development of 39 single-family detached residential dwellings. Land use application in process.</p> <p>Rio Santiago – Total of 110 acres. The planned uses include development of a 460 unit senior living community, natural open space, and private recreational facilities. Land use application in process.</p>	<p>1051 Meads Ave, Orange, CA</p> <p>6118 E. Santiago Canyon Road, Orange, CA</p>

SOURCES: ESA, 2010



SOURCE: ESA, 2010.

IRWD Baker WTP Draft EIR . 208671

Figure 4-1
Cumulative Projects

4.3 Cumulative Impacts and Mitigation Measures

4.3.1 Project Construction

Construction of the proposed project is expected to occur between 2011 and 2012. The construction schedule for the proposed facilities depends on funding and permitting. For the purposes of this analysis, the related projects identified in Table 4-1 are all presumed to be implemented concurrently within the 2011 to 2012 timeframe. These related projects, which include infrastructure, commercial, civic, and residential development projects may contribute to certain types of cumulative construction impacts to air quality, hazards and hazardous materials, hydrology and water quality, noise and vibration, and traffic and transportation, as described below. There would be no cumulative construction-related impacts to aesthetics; biological resources; cultural resources; geology and soils; hazards and hazardous materials; land use and recreation; agriculture and forestry; or public services and utilities. Due to the nature of these resources as geographically confined, site specific, and/or distinct, any impacts can be mitigated for individual projects and collectively do not compound to create cumulatively considerable impacts.

Impact 4-1: The proposed project, together with related projects, could create cumulative short-term construction impacts related to air quality, hydrology and water quality, noise and vibration, and traffic and transportation. (Less than Significant with Mitigation)

Air Quality

As explained in Chapter 3.2, Air Quality and Greenhouse Gas Emissions, emissions associated with construction of the proposed project would not exceed the SCAQMD's thresholds and therefore would not be expected to be cumulatively considerable. SCAQMD's thresholds are intended to avoid significant cumulative impacts to the air basin, and protect air quality in the air basin. With respect to nearby, related past, present and/or foreseeable future projects with overlapping construction periods, it is possible that emission increases for certain air pollutants could exceed the SCAQMD's emission thresholds. However, per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other related projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. Construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant. Impacts would be considered less than significant, and no mitigation is required.

Hydrology and Water Quality

As with the proposed project, all related projects are subject to the same federal CWA, State Porter Cologne Water Quality Control Act, and Basin Plan regulations that protect water quality and water resources. These regulations include NPDES permit requirements, implementing SWPPPs, and post-development storm water quality and quantity requirements. All of these regulations are designed to address the incremental effects of individual projects such that they do not cause a cumulatively considerable impact. Therefore, despite the potential for construction of

the related projects to alter drainage patterns, runoff conditions, and storm water quality, the adherence to the aforementioned requirements would ensure that they do not result in cumulatively considerable impacts related to sedimentation, flooding, water quality, drainage storm water system capacity, and flood hazard areas. Therefore, when considered in combination with other developments similarly bound by the same regulations, the proposed project's incremental contribution to water quality and quantity impacts would not be cumulatively considerable. No mitigation is required.

Noise and Vibration

The geographic scope of potential cumulative noise and vibration impacts encompasses the proposed construction sites and immediate vicinity. The proposed project's construction activity would generate substantial noise levels in close proximity to sensitive receptors, particularly during the excavation and finishing phases of sewer pipeline installation and Baker WTP construction. Related projects in the surrounding area also would temporarily generate noise and vibration associated with construction activities; however noise and vibration would be localized, affecting areas in the immediate vicinity of the construction site. Construction noise associated with the proposed project would not combine with construction noise from neighboring related projects to cause a cumulative impact to the same sensitive receptors due to attenuation of sound and vibration as distance between source and receptor increases. Therefore, the proposed project's contribution to construction noise impacts would not be cumulatively considerable. No mitigation is required.

Traffic and Transportation

Construction of the proposed project, together with the identified related projects (Table 4-1), particularly in the vicinity of the Baker site, could affect traffic and circulation in the project area. The effects of construction activities on traffic and roadway hazards are due to an increase in the number of vehicles on local roadways (due to delivery of materials and worker commutes) and physical constraints on roadways if lane or street closures are required. The proposed project sites and staging areas largely would be constrained to the Baker site, Raw Water Pump Station site, and off-road pipeline alignments. However, construction of Option 1 of the treated water pipeline could affect a small portion of Peachwood Avenue and a portion of private roadways such as Wisteria and Marin (Figure 2-2). These activities would introduce construction equipment and oversized vehicles in and around these roadways that would potentially increase hazards to passing motorists. Trucks slowing and turning from Peachwood Avenue could affect traffic and create traffic hazards. Implementation of a Traffic Control Plan, as described in Mitigation Measure TR-1, would minimize hazards to motorists and ensure that turning lanes and site access plans are implemented. Wisteria and Marin are private roads owned by the Serrano Highlands Homeowners Association (HOA). Mitigation Measure TR-2 would require IRWD to obtain an easement from the HOA for any pipelines to be installed within Wisteria or Marin or otherwise on any private property. The remaining construction activities would take place off-road and would therefore not affect traffic or increase roadway hazards. Impacts would be less than significant with mitigation.

Some of the identified related projects could be constructed simultaneously in areas adjacent to or in close proximity to the proposed project. The addition of construction vehicles on local roadways due to the proposed project and related project could have cumulative impacts to traffic and vehicular hazards on local roadways. Implementation of Mitigation Measure CUM-1 would require IRWD to coordinate construction of the proposed project and the project's Traffic Control Plan with the City of Lake Forest to ensure cumulative impacts to traffic and circulation are reduced to less than significant levels. With implementation of this mitigation measure, impacts to traffic and circulation would not be cumulatively considerable and would be considered less than significant.

Mitigation Measure

CUM-1: IRWD shall communicate and coordinate project construction activities and the project's Traffic Control Plan with the City of Lake Forest. Phasing of project construction shall be coordinated to minimize cumulative impacts to traffic and circulation.

Significance after Mitigation: Less than significant.

4.3.2 Project Operation

Operation of the proposed project involves operation of a new potable water treatment facility and distribution of potable water in southern Orange County. Cumulative impacts associated with operation of the proposed project would be related to the effects associated with the physical presence of new facilities, particularly aboveground facilities such as the proposed Baker WTP and Raw Water Pump Station. In addition, cumulative impacts would be related to maintenance and operation of the new facilities, such as electricity usage, delivery of chemicals to the Baker WTP, new IRWD staff, and generation of waste. The resources potentially affected by operation of the proposed project together with related projects listed in Table 4-1 are discussed below. There would be no cumulative operational impacts to agricultural and forestry resources; biological resources; cultural resources; hazards and hazardous materials; geology, soils and mineral resources; land use and recreation; noise and vibration; and public services. Operation of the proposed project either has no impact to these resources or, due to the nature of these resources as geographically confined, site specific, and/or distinct, any impacts can be mitigated for individual projects and collectively do not compound to create cumulatively considerable impacts.

Impact 4-2: Operation of the proposed project, together with related projects, could create cumulative impacts to aesthetics, air quality, storm water runoff and facilities, and traffic and transportation. (Less than Significant)

Aesthetics

Two of the related projects (Table 4-1) are located directly adjacent to the project site and possibly within the same line of sight as the proposed project: the Shea/Baker Ranch project and the Irvine Ranch Water District /Lewis project. The proposed Baker WTP would be constructed largely within the footprint of the existing BFP. As part of the Project Description (Chapter 2),

the aboveground Baker WTP facilities would be designed to be compatible with the existing and future planned neighboring residential development and parks and existing buildings at the Baker site, such as the office building and storage building (see Figure 3.1-1). As described in Chapter 3.1 Aesthetics, development of the Baker site would not have significant impacts to the visual character of the site or to scenic vistas in the project area.

When considered individually and cumulatively, implementation of related projects could have substantial impacts to the visual character of sites in the project area and to scenic vistas. Currently, sites proposed for development in the vicinity of the Baker site are characterized by open space or vacant land. Although impacts associated with these related projects could be significant, the proposed project would not have a cumulatively considerable incremental impact to aesthetics due to the existing baseline conditions at the Baker site, which is already developed with treatment facilities that are visible from surrounding roadways and ridgelines. No mitigation measures are required.

There are no related projects close to the proposed Raw Water Pump Station that together with the proposed project would affect visual character of the site or scenic vistas. There would be no cumulative impacts to aesthetics associated with the proposed Raw Water Pump Station.

Air Quality

As discussed in Chapter 3.2 Air Quality and Greenhouse Gas Emissions, the operational impacts of the proposed project would not exceed the SCAQMD's thresholds and therefore would not be expected to be cumulatively considerable. With respect to nearby, related past, present and/or foreseeable future projects, it is possible that emission increases for certain air pollutants could exceed the SCAQMD's emission thresholds. However, per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other related projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. Development of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant. No mitigation is required.

Storm Water Runoff and Facilities

Implementation of related projects in the vicinity of the Baker site would introduce new impervious surfaces into the Serrano Creek drainage area. Related projects immediately adjacent to the Baker site would be located on sites characterized by open space and vacant land. Improvements made as a result of these development projects would introduce new structures and paved surfaces to these sites that would alter the runoff and drainage patterns, which could have significant impacts to storm water runoff volume and water quality and could require new storm water drainage facilities. When considered together with these related projects, the proposed project could have a cumulative impact on storm flows and flood elevations in Serrano Creek. However, as described in Chapter 3.8, Hydrology and Water Quality, the proposed project itself would not result in substantial increases in runoff from the Baker site relative to existing conditions. The proposed Baker WTP would not add substantial amounts of new impervious surfaces and would not significantly affect storm water runoff, water quality, or flooding. The

proposed project would not have a cumulatively-considerable incremental impact to storm water volume, quality or flooding when considered together with related projects and would not have cumulatively considerable impact to storm water drainage facilities. No mitigation is required.

Traffic and Transportation

Planned growth, as described in the City of Lake Forest General Plan and EIR, City of Lake Forest Opportunities Study and EIR, and City of Orange General Plan and EIR would continue to contribute to overall traffic in the region. The proposed residential, commercial, and civic projects listed in Table 4-1 would be part of the planned growth approved by the cities in the project area. Increases in ADT on local and regional roadways and decreases in LOS could result due to implementation of the related projects, which are residential, commercial, and civic developments that would generate traffic. Combined, the related projects would introduce over 4,750 residential housing units of various sizes to the region which would affect traffic volume on roadways. The operational vehicle trips associated with the proposed project would be limited to the delivery of chemicals (up to 20 deliveries per month) and operational and maintenance staff vehicle trips. Relative to the traffic loads on roadways as described in Chapter 3.12, Traffic and Circulation, impacts of the proposed project to traffic would not be significant. In addition, relative to the potential new traffic loads associated with related projects, the proposed project would not have a cumulatively-considerable impact on ADT, LOS, or alternative transportation. No mitigation is required.

4.3.3 Greenhouse Gas Emissions

Greenhouse gas (GHG) impacts are considered to be exclusively cumulative impacts; there are no non-cumulative greenhouse gas emission impacts from a climate change perspective (CAPCOA, 2008). Greenhouse gas emissions are discussed in Chapter 3.2, Air Quality and Greenhouse Gas Emissions. The proposed project would not have a cumulatively-considerable impact on GHGs or global climate change and would not conflict with the State's ability to meet AB32 goals. See Chapter 3.2 for a detailed discussion of impact.

References – Cumulative Impacts

California Air Pollution Control Officers Association (CAPCOA), *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, 2008.

City of Lake Forest, *General Plan*, June 21, 1994. Available online at: http://www.city-lakeforest.com/depts/ds/planning/plan_docs/default.asp

City of Lake Forest, *City of Lake Forest Opportunities Study Program EIR*, 2006.

City of Orange, *General Plan Draft Environmental Impact Report*, February, 2009A. Available online at: <http://www.edaw.com/orange/library.htm#EXLU>.

City of Orange, *General Plan*, January 2009B.

City of Orange, *Pending Land Use Applications*, Updated November 4, 2010.

CHAPTER 5

Growth Inducement

5.1 Introduction

The *CEQA Guidelines* (§15126.2(d)) require that an Environmental Impact Report (EIR) evaluate the growth-inducing impacts of a proposed action. Section 15126.2(d) calls for the EIR to:

Discuss the way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a reclaimed water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth inducement potential. Direct growth would result if a project, for example, involved construction of new housing. A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it involved a construction effort with substantial short-term employment opportunities that indirectly stimulated the need for additional housing and services to support the new employment demand. Similarly, a project would indirectly induce growth if it removed an obstacle to additional growth and development, such as removing a constraint on a required public service, such as potable water or wastewater treatment capacity.

A project that is determined to be growth inducing can result in subsequent environmental effects as a result of such growth. These environmental effects are considered indirect secondary effects of growth. Secondary effects of growth can result, for example, in significant increased demand on community and public service infrastructure; increased traffic and noise; degradation of air and water quality; and conversion of agricultural land to urban uses.

5.2 Direct and Indirect Growth Inducement

Implementation of the proposed project would have no potential to directly foster population growth or to result in the construction of additional housing. Project construction is not expected to

create substantial employment opportunities beyond the level normally available to construction workers in the area. Construction of the proposed project would require approximately 80 workers. In general, workers are expected to be drawn from the local labor pool. Therefore, the proposed project would have no direct impacts on growth.

As previously described in Chapter 2, Project Description, the objectives of the proposed project are to:

- Improve water reliability to areas of south Orange County by constructing local treatment capability for a variable supply source (imported water from MWD and local Irvine Lake water).
- Provide a reliable, local potable water supply in the event of emergency conditions or scheduled maintenance of MWD's delivery system.
- Increase operational flexibility by creating redundancy within the raw water supply system.

The proposed project would increase water supply reliability in southern Orange County by creating redundancy of treatment system capacity for potable water (non-irrigation use). The proposed Baker WTP would provide redundant treatment capacity to MWD's Diemer Filtration Plant and would also have the capability to treat variable raw water supply sources, including imported water and Irvine Lake water. Imported water treated at the Baker WTP would be in place of, rather than in addition to, water treated at the Diemer Filtration Plant. The intermittent raw water provided via Irvine Lake would not be a dependable supply and would not be a constant reliable source of water that could induce growth. The proposed project would not result in an increase in potable water supplies and would not remove an obstacle to growth. The proposed project is not necessary to alleviate current or future demand at the Diemer Filtration Plant. If the proposed project is not implemented, the Diemer Filtration Plant would continue to provide imported water to IRWD and the partner agencies to provide potable water to meet current and future demand. Potable water treatment capacity currently is not considered an obstacle to growth. The proposed project would not remove an obstacle to growth and thus would not indirectly induce growth.

The proposed project would not directly or indirectly induce growth. Accordingly, the proposed project would not result in any secondary effects of growth.

CHAPTER 6

Alternatives Analysis

6.1 CEQA Requirement for Alternatives Analysis

CEQA requires that an EIR describe and evaluate a reasonable range of feasible alternatives to a project or to the location of a project that would avoid or substantially lessen significant project impacts and attain most of the project objectives. CEQA Guidelines (§15126.6) set forth the following criteria for alternatives:

- **Identifying Alternatives.** The range of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project attain most of the objectives of the project, and are feasible. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. CEQA also specifically requires consideration of the ‘no project’ alternative, which addresses the impact of not building the project and addresses what could occur in the foreseeable future if the project is not approved. The EIR should identify alternatives considered but rejected as infeasible during the scoping process and briefly explain the reasons underlying such determination.
- **Range of Alternatives.** An EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that will foster informed decision-making and public participation. The “rule of reason” governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice.
- **Evaluation of Alternatives.** EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Matrices may be used to display the major characteristics of each alternative and significant environmental effects of each alternative to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed but in less detail than the significant effects of the project.

6.2 Project Objectives

As described in Chapter 2, Project Description, the project objectives are as follows:

- Improve water reliability to areas of south Orange County by constructing local treatment capability for a variable supply source (imported water from MWD and local Irvine Lake water).
- Provide a reliable, local potable water supply in the event of emergency conditions or scheduled maintenance of MWD's delivery system (e.g., AMP, Lower Feeder, Diemer Filtration Plant).
- Increase operational flexibility by creating redundancy within the raw water supply system.

6.3 Key Impacts of the Proposed Project

Chapter 3 of this EIR identifies potential impacts associated with the proposed project for each environmental issue area including long-term and short-term impacts. Mitigation measures have been identified to render impacts less than significant. No significant unavoidable impacts would result from implementation of the proposed project. A summary of the significant of impacts for each environmental resource analyzed in Chapters 3 and 4 is presented below in **Table 6-1**.

**TABLE 6-1
SUMMARY OF PROJECT IMPACT ANALYSIS**

Issue Area	Significance Determination
Aesthetics	LSM
Agricultural and Forestry Resources	NI
Air Quality and Greenhouse Gas Emissions	LTS
Biological Resources	LSM
Cultural Resources	LSM
Geology, Soils and Mineral Resources	LSM
Hazards and Hazardous Materials	LSM
Hydrology and Water Quality	LSM
Land Use, Planning and Recreation	LSM
Noise	LSM
Public Services and Utilities	LTS
Transportation and Traffic	LSM
Cumulative Impacts	LSM

NI = No Impact
LTS = Less than Significant
LSM = Less than Significant with Mitigation

SOURCE: ESA 2010.

6.4 Alternatives Eliminated from Further Consideration

An EIR must briefly describe the rationale for selection and rejection of alternatives. The Lead Agency may make an initial determination as to which alternatives are potentially feasible and, therefore, merit in-depth consideration, and which are clearly infeasible. Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (*CEQA Guidelines*, Section 15126.6(f)(3)). This section identifies alternatives considered by the Lead Agency, but rejected as infeasible, and provides a brief explanation of the reasons for their exclusion. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid any significant environmental effects (*CEQA Guidelines*, Section 15126.6(c)).

No Raw Water Pump Station Alternative

IRWD investigated the potential to supply raw water to the Baker WTP by gravity from both the Santiago Lateral and Irvine Lake, avoiding the need for the Raw Water Pump Station. Such operation would involve gravity flow from the Santiago Lateral as a normal operating condition, and gravity flow from Irvine Lake into the Baker Pipeline during emergency conditions. Under this alternative, no new construction would be required at the existing Intertie site near Peters Canyon Reservoir. However, hydraulics analysis for the emergency condition revealed that raw water supply would have to be reduced to less than half of normal operating capacity (43.5 cfs). The alternative was rejected due to its limitations in supplying water during emergency conditions and meeting the main objective of the proposed project, which is to increase water supply reliability to southern Orange County. In addition, there would be no significant, unavoidable environmental impacts that would be avoided by implementing this alternative and eliminating the Raw Water Pump Station from the proposed project.

Reduced Capacity Alternative

IRWD considered a range of capacities for the Baker WTP, including alternatives that would reduce plant capacity below the proposed project (43.5 cfs). By developing civil and mechanical plans for the various facilities it was determined that for a plant with less capacity, the construction footprint and modifications at OC-33, the Raw Water Pump Station, and the Baker WTP forebay would be approximately the same as the proposed project. Therefore, the Reduced Capacity Alternative was rejected because there would be no significant, unavoidable environmental impacts avoided by reducing plant capacity, given the similar construction footprints and modifications required. In addition, this alternative would constrain the potential increase in water supply reliability, which is the main objective of the proposed project, by restricting plant capacity.

6.5 Project Alternatives

An EIR must describe a range of reasonable alternatives to the proposed project or alternative project locations that could feasibly attain most of the basic project objectives and would avoid or

substantially lessen any of the significant environmental impacts to the proposed project. The alternatives analysis must include the “No Project Alternative” as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the proposed project were not approved (*CEQA Guidelines* §15126.6). CEQA also requires that an EIR identify an environmentally superior alternative (*CEQA Guidelines* §15126.6[e][2]). Following is a discussion of three alternatives, including the No Project Alternative. The analyses for Alternatives 1 and 2 address those environmental topics most likely to change.

No Project Alternative

Pursuant to Section 15126.6(e)(2) of the *CEQA Guidelines*, the No Project Alternative shall:

...discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

Under the No Project Alternative, IRWD would not implement the proposed project; there would be no construction of the proposed Raw Water Pump Station, Baker WTP, sewer pipeline, treated water conveyance pipeline, or OC-33 meter exchange. The Baker site would remain unchanged and the Baker/Irvine Lake Pipeline Intertie also would remain unchanged. The BFP would continue to provide filtered well water to supplement IRWD’s recycled water system and the antennae tower would continue to operate as part of IRWD’s existing district-wide SCADA system. The Diemer Filtration Plant would continue to provide treatment for imported water for IRWD and the partner agencies in south Orange County. Raw water in Irvine Lake would continue to be utilized for agricultural irrigation.

Ability to Meet Project Objectives

Under the No Project Alternative, none of the project objectives would be achieved. There would be no improvements to water supply reliability in south Orange County, no increase in local water treatment capability for variable supply sources, and no redundancy in raw water supply systems to provide operational flexibility.

Impact Analysis

Under the No Project Alternative, the impacts identified in Chapters 3 and 4 of this Draft EIR that are associated with construction and operation of the proposed project would be avoided. The Diemer Filtration Plant would continue to provide imported water to IRWD and the partner agencies. MWD’s current and future plans for the Diemer Filtration Plant include expectations to provide treated water to IRWD and the partner agencies. Therefore, no additional environmental impacts would occur under the No Project Alternative.

Alternative 1: Peters Canyon WTP Location

In 2007, the Santiago Aqueduct Commission (SAC) prepared the *Baker Pipeline Regional Treatment Facility Feasibility Study* (Malcolm Pirnie, 2007), which evaluated implementation of a regional WTP at two locations, the existing Baker site and the Peters Canyon WTP. Alternative 1 consists of development of the Peters Canyon WTP, which is owned by the East Orange County Water District (EOCWD) and is located in the County of Orange approximately 0.35 miles east of Peters Canyon Reservoir. The site is surrounded by open space in the foothills of the Santa Ana Mountains and is within the boundaries of the Loma Ridge portion of the Irvine Ranch Natural Landmark. The Peters Canyon WTP, constructed in 1963, is currently decommissioned and has a rated capacity of approximately 9 cfs. Under Alternative 1, IRWD would form a JPA or otherwise contract with EOCWD for use of the Peters Canyon WTP site and implement improvements similar to the proposed project, to produce 28 mgd of treated water using either imported water or Irvine Lake water as the raw water source. The Raw Water Pump Station would be necessary, similar to the proposed project, in order to convey Irvine Lake water to the site. In addition, a new connection to the AMP would be required for distribution of treated water.

The 2007 Feasibility Study evaluated both the Peters Canyon WTP site and the Baker site, applying several alternatives screening criteria, including proximity to existing system infrastructure, utilities availability, facility condition/seismic upgrading, site access, compatibility with the surrounding land uses, environmental impacts, and permit requirements (Malcolm Pirnie, 2007).

Ability to Meet Project Objectives

Under Alternative 1, all project objectives would be met. Under Alternative 1, construction of the Peters Canyon WTP would result in improvements to water supply reliability in south Orange County, increases in local water treatment capability for variable supply sources, and redundancy in the raw water supply system to provide operational flexibility.

Impact Analysis

Under Alternative 1, the impacts would be similar to those described in Chapter 3 and 4, with the exception of aesthetics, air quality, biological resources, hazards and hazardous materials, land use, energy and GHGs, and noise.

Aesthetics: The proposed project would result in less than significant impacts to aesthetics with mitigation incorporated (see Section 3.1). Under Alternative 1, development of a WTP would occur in an area in which no other development currently exists. The Peters Canyon WTP site is located within the Loma Ridge portion of the Irvine Ranch Natural Landmark and surrounded by open space. The Peters Canyon WTP site is also in close proximity and visible from State Route (SR) 241 and SR 261. Expansion of the site to accommodate a treatment plant would have minor impacts to the visual character of the site and its surroundings. Neither SR 241 or SR 261 are designated or eligible state scenic highways. However, expansion of the Peters Canyon WTP

would affect the scenic vistas viewed from these roadways. Jamboree Road, in the vicinity of the site, is designated by the City of Orange as a viewscape corridor. However, the Peters Canyon WTP site is not visible from Jamboree Road due to the rolling topography that blocks views of the site from the roadway. As compared to the proposed project, Alternative 1 would result in minor additional impacts to aesthetics relative to the proposed project.

Air Quality: The proposed project would result in less than significant impacts to air quality (see Section 3.3). Under Alternative 1, expansion of the decommissioned Peters Canyon WTP would require extensive grading and fill. The Peters Canyon WTP site is smaller than the Baker site and expansion would be constrained by the topography and land uses of surrounding parcels. The Peters Canyon WTP site also lacks any existing constructed storage, such as the two 16-MG storage tanks already at the Baker site. According to the 2007 Feasibility Study, the practical maximum capacity of a treatment plant at this site likely would be 10 mgd. In order to create sufficient space for a 28 mgd treatment plant, extensive grading and fill would be required. Under Alternative 1, grading and earthmoving activities would be more extensive than the proposed project. This would result in additional air emissions associated with construction equipment operation and the generation of fugitive dust due to grading and earthmoving. As compared to the proposed project, Alternative 1 would result in greater impacts to air quality.

Biological Resources and Land Use Compatibility: The proposed project would result in less than significant impacts to biological resources with mitigation measures incorporated (see Section 3.4) and less than significant impacts to land use without mitigation (see Section 3.9). Alternative 1 would be located at the now decommissioned Peters Canyon WTP site, within the Loma Ridge portion of the Irvine Ranch Natural Landmark. Approximately 40,000 acres of open space within the historic Irvine Ranch have been designated as a Natural Landmark by both the State of California and the U.S. Department of the Interior. The land is protected and maintained cooperatively by landowners and managers, including California State Parks, the County of Orange, and The Irvine Company. The land contains rare and valuable biological and geological features, including species biodiversity, natural communities such as coastal sage scrub, rock formations and fossils. Under Alternative 1, construction of the Peters Canyon WTP would have the potential to result in greater impacts to special-status species and habitats. In addition, under Alternative 1, expansion of the site to accommodate a 28-mgd plant would have the potential to be incompatible with land use designations of neighboring parcels within the Natural Landmark. As compared to the proposed project, Alternative 1 would result in greater impacts to biological resources and land use compatibility.

Hazards and Hazardous Materials: The proposed project would result in less than significant impacts due to hazards and hazardous materials with mitigation measures incorporated (see Section 3.7). Similar to the proposed project, Alternative 1 would require the transport, use, and disposal of hazardous materials during both construction and operation of the Peters Canyon WTP. However, Alternative 1 would be located in an area that is not proximate to residential land uses like the proposed project. As a result, the potential impacts to sensitive receptors associated with release of hazardous materials would be less under Alternative 1.

Energy and GHGs: The proposed project would result in less than significant impacts related to energy and GHGs (see Section 3.3). Under Alternative 1, due to site elevation and location, pumping facilities would be required at the Peters Canyon WTP. These pumping facilities would require additional power usage relative to the proposed project. The additional energy usage would result in an incremental increase in GHG emissions relative to the proposed project. As compared to the proposed project, Alternative 1 would result in more GHG emissions than the proposed project.

Noise: The proposed project would result in less than significant impacts with mitigation measures incorporated (see Section 3.10). Under Alternative 1, there would be no sensitive receptors in close proximity to the site, and as a result, noise associated with construction activity would not affect sensitive receptors, such as residential land uses. The Peters Canyon WTP site is located within the Loma Ridge portion of the Irvine Ranch Natural Landmark and surrounded by open space. The site is also approximately 250 feet from State Route 261. Alternative 1 would avoid the noise impacts associated with construction at the Baker site under the proposed project. As compared to the proposed project, Alternative 1 would result in fewer noise impacts.

Impact Summary

Alternative 1 would meet all of the goals of the project. Alternative 1 would result in greater or more severe impacts to the environment related to aesthetics, air quality, biological resources, land use compatibility, and energy and GHGs. Alternative 1 would result in lesser impacts associated with hazardous materials and noise.

Alternative 2: Conventional Treatment Process

The 2007 Feasibility Study (Malcolm Pirnie, 2007) evaluated conventional treatment as an alternative to membrane filtration. Under Alternative 2, IRWD would construct a new treatment plant at the Baker site using a conventional treatment process instead of a membrane filtration process. A conventional treatment process typically would require facilities such as primary treatment facilities (flocculation and sedimentation basins), secondary filtration facilities, disinfection facilities (chlorine contactor, UV facility), an equalization basin, and solids handling facilities (thickener, belt filter presses, solids disposal). Although this Alternative would meet all of the project objectives, conventional treatment requires a greater footprint than a membrane filtration process. In addition, conventional treatment requires more chemical use and has greater sludge disposal requirements. Conventional treatment is also less favored by the California Department of Public Health, and is slightly more expensive to build, operate, and maintain. However, according to the Feasibility Study, conventional treatment is a proven, reliable and low-cost treatment (despite the slightly higher costs of construction, operation and maintenance), and is considered viable for the Baker WTP.

Ability to Meet Project Objectives

Under Alternative 2, all project objectives would be met. Construction of conventional treatment plant at the Baker WTP would also result in improvements to water supply reliability in south Orange County, increases in local water treatment capability for variable supply sources, and redundancy in the raw water supply system to provide operational flexibility.

Impact Analysis

Under Alternative 2, the impacts would be similar to those described in Chapter 3 and 4, with the exception of aesthetics, air quality, hazardous materials, energy and GHGs, and noise.

Aesthetics: The proposed project would result in less than significant impacts to aesthetics with mitigation incorporated (see Section 3.1). Under Alternative 2, construction of new facilities would be required, within the existing Baker site. These facilities would differ from the proposed project and would include open ponds and additional structures that, even with mature landscaping, could possibly be seen from areas in the vicinity of the Baker site. Similar to the proposed project, views from public roadways and residences immediately west and south of the Baker site would be mostly obstructed due to site topography that includes a bluff along the perimeter. Public views of the site from elevated locations and residences further south and southeast of the site across Serrano Creek would include the site's new structures, such as open ponds. These locations would be in a position to see new light and glare from new structures and open water features associated with Alternative 2. As compared to the proposed project, Alternative 2 would be considered to have slightly greater aesthetic impacts.

Air Quality: The proposed project would result in less than significant impacts to air quality (see Section 3.3). Under Alternative 2, demolition of most, if not all, existing buildings and new construction of a water treatment plant using conventional processing would result in a longer demolition/construction period over a greater period of time than contemplated for the proposed project. As a result, air emissions during construction would be greater relative to the proposed project. Under Alternative 2, treatment processes would result in greater solids handling and create the potential for more odors during plant operation. As compared to the proposed project, Alternative 2 would result in greater impacts related to air quality and odor.

Hazards and Hazardous Materials: The proposed project would result in less than significant impacts due to hazards and hazardous materials with mitigation measures incorporated (see Section 3.7). Similar to the proposed project, Alternative 2 would require the transport, use, and disposal of hazardous materials during both construction and operation of the proposed treatment facilities at the Baker site. However, Alternative 2 would involve treatment processes that require more chemical use relative to the proposed project. As a result, the potential impacts to sensitive receptors and the environment associated with release of hazardous materials would be greater under Alternative 2.

Energy and GHGs: The proposed project would result in less than significant impacts related to energy and GHGs (see Section 3.3). Under Alternative 2, the proposed conventional treatment

processes would require less energy than membrane processes that are part of the proposed project. Therefore, operation of Alternative 2 would have fewer impacts to energy and GHGs relative to the proposed project.

Noise: The proposed project would result in less than significant impacts with mitigation measures incorporated (see Section 3.10). Under Alternative 2, demolition and construction activities would occur over a longer period of time near sensitive receptors, which include residences west, southwest and southeast of the project site. In addition, conventional treatment processes generally generate more noise, relative to membrane processes, since fewer pieces of operational equipment are housed within buildings that can dampen noise. As a result, as compared to the proposed project, Alternative 2 would result in greater impacts to noise levels.

Impact Summary

Although Alternative 2 would meet all of the goals of the project, as compared to the proposed project, Alternative 2 would result in greater impacts to the environment related to aesthetics, air quality (construction impacts), odor, hazardous materials, and noise. As compared to the proposed project, Alternative 2 would result in fewer operational impacts to energy and GHGs.

6.6 Summary of Alternatives Analysis

A summary of the alternatives analysis is provided in **Table 6-2**, which provides a comparison of the proposed project to each alternative with respect to project objectives and project impacts. The alternatives evaluated in this EIR present a tradeoff between achieving project objectives and impacting the environment. The No Project Alternative would avoid all the environmental impacts of the proposed project but would not meet any of the project objectives. Alternatives 1 and 2 would meet all of the project objectives but could result in additional impacts to the environment relative to the proposed project.

6.7 Environmentally Superior Alternative

An EIR must identify the environmentally superior alternative. In addition, the *CEQA Guidelines* (Section 15126.6(e)(2)) require that, if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

The No Project Alternative would result in the least environmental impacts because there would be no physical changes to the environment as a result of the proposed project. All impacts associated with the proposed project would be avoided. In accordance with CEQA, an environmentally superior alternative shall be identified among the project alternatives.

Alternatives 1 and 2 would not likely result in significant and unavoidable impacts. However, both would increase the severity of impacts associated with some environmental resources while

TABLE 6-2
SUMMARY OF ALTERNATIVES ANALYSIS
RELATIVE IMPACTS AS COMPARED TO THE PROPOSED PROJECT

Issue Area	Proposed Project	No Project Alternative	Alternative 1	Alternative 2
Meets Project Objectives?	Yes	No	Yes	Yes
Environmental Impacts				
Aesthetics	LSM	None	+	+
Agricultural and Forestry Resources	NI	None	0	0
Air Quality, Odor, and GHG Emissions	LTS	None	+	+/-
Biological Resources	LSM	None	+	0
Cultural Resources	LSM	None	0	0
Geology, Soils and Mineral Resources	LSM	None	0	0
Hazards and Hazardous Materials	LSM	None	-	+
Hydrology and Water Quality	LSM	None	0	0
Land Use, Planning and Recreation	LSM	None	+	0
Noise	LSM	None	-	+
Public Services, Utilities and Energy	LTS	None	+	-
Transportation and Traffic	LSM	None	0	0

LTS = less than significant
 LSM = less than significant with mitigation
 + = more severe/more intense
 - = less severe/less intense
 0 = no change

SOURCE: ESA 2010.

decreasing impacts associated with others. For Alternative 1, the increase in potential environmental impacts (to aesthetics, construction-related air emissions, biological resources, land use compatibility, and energy) outweighs the potential decrease in impacts (to noise and hazardous materials), when compared to the proposed project. Therefore Alternative 1 is not considered environmentally superior to the proposed project.

Similarly, for Alternative 2, the increase in potential environmental impacts (to aesthetics, construction-related air emissions, hazardous materials, and noise) outweighs the potential decrease in impacts (to energy and GHG emissions), when compared to the proposed project. Therefore Alternative 2 also is not considered environmentally superior to the proposed project. As a result, the proposed project is considered the Environmentally Superior Alternative.

References – Alternatives Analysis

Malcolm Pirnie, *Baker Pipeline Regional Treatment Facility Feasibility Study* (prepared for the Santiago Aqueduct Commission), January 2007.

RBF Consulting, *Baker Water Treatment Plant Preliminary Design Report*, April 2010.

CHAPTER 7

Report Preparers

7.1 Project Sponsor / Lead Agency

Irvine Ranch Water District

15600 Sand Canyon Avenue
Irvine, California 92618-3102

Paul Weghorst – Principal Water Resources Manager
Christian Kessler – Project Manager

7.2 EIR Authors and Consultants

Environmental Science Associates

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Los Angeles, CA 90017

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Technical Staff

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Donald Ambroziak
Madeleine Bray
Lauren Campbell

Justin Conley
Jack Hutchinson
David Jaeckel
Mitch Jenkins
Paul Miller

Eric Schneiwind
Kevin Smith
Monica Strauss
Damien Tietjen
Jon West

PaleoSolutions

2035 Placentia Avenue, Suite D
Costa Mesa, CA 92627

Geraldine Aron – President

CHAPTER 8

Comment Letters

The Draft EIR for the Baker Water Treatment Plant Project (proposed project) was circulated for public review for 45 days (January 24, 2011, through March 9, 2011). IRWD received nine comment letters during the public review period. Verbal comments also were received during the public meeting held on February 9, 2011. This chapter presents the comment letters, in the order listed in the table below, followed by the summary of verbal comments. The letters and verbal comments have been bracketed and numbered; corresponding responses are provided in Chapter 9, Responses to Comments.

COMMENT LETTERS AND PUBLIC MEETING COMMENTS RECEIVED

Comment No.	Commenting Agency	Date of Comment
Agencies		
1	California Department of Toxic Substances Control	February 9, 2011
2	Metropolitan Water District of Southern California	February 17, 2011
3	Orange County Public Works	February 25, 2011
4	California Department of Transportation	March 7, 2011
5	California Regional Water Quality Control Board	March 8, 2011
6	City of Orange	March 8, 2011
7	South Coast Air Quality Management District	March 10, 2011
Interested Parties		
8	Peggy Falcon	February 8, 2011
9	Dave Alexander	March 9, 2011
Public Meeting Comments		
10	Verbal comments from public meeting in Irvine, CA	February 9, 2011



Linda S. Adams
Acting Secretary for
Environmental Protection



Department of Toxic Substances Control

Maziar Movassaghi
Acting Director
5796 Corporate Avenue
Cypress, California 90630



Edmund G. Brown Jr.
Governor

PLANNING & WATER RESOURCES

FEB 11 2011

IRVINE RANCH
WATER DISTRICT

February 9, 2011

Mr. Paul Weghorst, Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Ave
Irvine, California 92618

NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR
THE IRWD BAKER WATER TREATMENT PLANT PROJECT, ORANGE COUNTY

Dear Mr. Weghorst:

The Department of Toxic Substances Control (DTSC) has received your submitted Draft Environmental Impact Report (EIR) for the above-mentioned project. The following project description is stated in your document: "The Irvine Ranch Water District (IRWD) is proposing to construct the proposed project to provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity for potable water. The proposed Baker Water Treatment Plant (WTP) would have a normal operating capacity of 43.5 cubic feet per second (28 million gallons per day) and would treat raw water from variable supply sources. The proposed Baker WTP would be constructed on the southernmost portion of a 98-acre parcel located at 21082 Wisteria in the City of Lake Forest, at the site of the existing Baker Filtration Plant (BFP). The proposed Raw Water Pump Station would be located near Peter Canyon Reservoir at 9737 Peters Canyon Road in the City of Orange, at the site of the existing Baker/Irvine Lake Pipeline Intertie facilities. The proposed project requires a meter exchange and pipeline replacement at OC-33, which is located in an unincorporated area of then County of Orange in the hills east of Irvine Regional Park. The aboveground Baker WTP facilities would be designed to be compatible with existing buildings onsite at the BFP".

Mr. Paul Weghorst
February 8, 2011
Page 2

Based on the review of the submitted document DTSC has the following comments:

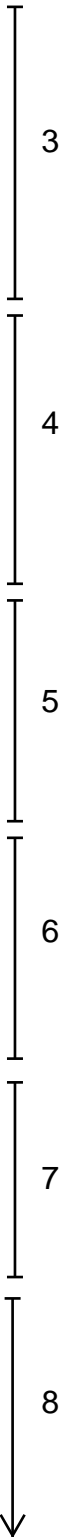
- 1) The EIR should evaluate whether conditions within the Project area may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:
 - National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).
 - EnviroStor (formerly CalSites): A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below).
 - Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.
 - Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA.
 - Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.
 - GeoTracker: A List that is maintained by Regional Water Quality Control Boards.
 - Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.
 - The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).

- 2) The EIR should identify the mechanism to initiate any required investigation and/or remediation for any site within the proposed Project area that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary, DTSC would require an oversight agreement in order to review such documents.

1
2

Mr. Paul Weghorst
February 8, 2011
Page 3

- 3) Any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found above regulatory standards should be clearly summarized in a table. All closure, certification or remediation approval reports by regulatory agencies should be included in the EIR.
- 4) If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.
- 5) Future project construction may require soil excavation or filling in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure that the imported soil is free of contamination.
- 6) Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.
- 7) If the site was used for agricultural, livestock or related activities, onsite soils and groundwater might contain pesticides, agricultural chemical, organic waste or other related residue. Proper investigation, and remedial actions, if necessary, should be conducted under the oversight of and approved by a government agency at the site prior to construction of the project.
- 8) If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that



Mr. Paul Weghorst
February 8, 2011
Page 4

hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA.

8

- 9) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

9

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Sincerely,



Greg Holmes
Unit Chief
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
ADelacr1@dtsc.ca.gov

CEQA # 3137

"West,Deirdre M" <dwest@mwdh2o.com> 2/17/2011 10:43 AM

Raghavender,

Thank you for providing us with a copy of the Environmental Impact Report for the Baker Water Treatment Plant (EIR). Metropolitan has reviewed the EIR and will not make any formal comments; however, we do request that you clarify Metropolitan's role as a Responsible Agency in your Final EIR. Section 2.6 of the EIR (Project Approvals) indicates that Metropolitan will act as a Responsible Agency for "approval for AMP connection". We request that you modify that statement to read "approve AMP interconnection and pipeline use".

1

Thank you for your assistance and please let me know if you have any questions or would like to discuss further.

Deirdre West



Jess A. Carbajal, Director
300 N. Flower Street
Santa Ana, CA
P.O. Box 4048
Santa Ana, CA 92702-4048
Telephone: (714) 834-2300
Fax: (714) 834-5188

NCL 11-004

February 25, 2011

Ms. Jennifer Jacobs
Environmental Science Associates
626 Wilshire Boulevard
Los Angeles, California 90017

SUBJECT: Draft Environmental Impact Report – Baker Water Treatment Plant/Irvine Ranch Water District – NCL 11-004

Dear Ms. Jacobs:

The County of Orange has reviewed the Draft Environmental Impact Report – Baker Water Treatment Plant/Irvine Ranch Water District located in the City of Tustin and offers the following comments:

Environmental Resources:

In response to your request for input on the subject project, OC Watersheds/Environmental Resources has reviewed the document, and offers the following comments:

1. The EIR notes that part of the project is to construct a large "Emergency Overflow Facility" that would drain into Serrano Creek. It is not made clear who owns the land in question where this facility would be constructed.
2. Since the footprint of this facility appears to terminate perhaps 100 feet from (and 30 feet above) the low flow channel of Serrano Creek (see EIR Figure 3.4-2), it is unclear what would keep that distance from eroding in response to the possible 54 CFS discharge "for several hours" stated on Page 3.8-16. If rip rap is



Jennifer Jacobs, Environmental Science Associates
February 25, 2011
Page 2

3. emplaced over this area, Figure 3.4-2 would then need to be revised to delineate that as an impact. ↑ 2
4. The EIR needs to address the potential for downcutting between the terminus of the footprint of the overflow facility and the low-flow channel of Serrano Creek, and within Serrano Creek itself below that point. Serrano Creek is subject to perhaps the most severe downcutting of any drainage course in Orange County, and additional clear water discharges have the potential to further destabilize the channel. 3
5. Since emergency discharges are by definition not natural, the EIR needs to address who owns the low flow channel into which discharges would occur, and whether the owner has consented to accepting them. 4
6. The EIR does not address whether the emergency overflow facility is an appropriate use for a water body with multiple beneficial uses identified as impaired on the most recently approved Clean Water Act Section 303(d) list for California (2006). It is also stated (Page 3.8-16) a discharge could arise from "the chlorine contact basin". Given these factors, the EIR should discuss the chemical and pollutant characteristics of the emergency discharges from all potential sources, and how they might impact Serrano Creek flows. 5
7. On Page 3.8-15 there is a commitment to preparing a Water Quality Management Plan (WQMP). However, as the emergency flows are part of the proposed project, preparation of a WQMP may not itself mitigate the impacts of the potential pollutant discharge to Serrano Creek. 6
8. The Biological Resources Assessment (Page 4) states there will be a second "new point of storm drain drainage to Serrano Creek" associated with future residential development of another part of the property. Since "it is currently planned to coordinate the (two) points of discharge" (same page), it would seem more reasonable to plan for a combined stormwater / emergency flow structural water quality treatment (or bio-treatment) best management practice (BMP) at this coordinated location. The project would then begin to address the current beneficial use impairment of Serrano Creek, rather than potentially worsening the ability of the creek to support designated beneficial uses at this location. 7

If you require any additional information, please contact Grant Sharp at (714) 955-0674.

Jennifer Jacobs, Environmental Science Associates
February 25, 2011
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Sincerely,

A handwritten signature in blue ink, appearing to read "M. Balsamo".

Michael Balsamo, Manager
General Land Use Planning

MB/mmc

cc: Chris Crompton, Environmental Resources

Comment Letter CALTRANS

PLANNING & WATER RESOURCES

DEPARTMENT OF TRANSPORTATION

District 12
3347 Michelson Drive, Suite 100
Irvine, CA 92612-8894
Tel: (949) 724-2241
Fax: (949) 724-2592

MAR 10 2011



Flex your power!
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IRVINE RANCH
WATER DISTRICT

FAX & MAIL

March 7, 2011

Paul Weghorst
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

File: IGR/CEQA
SCH#: 2010051055
Log #: 2512A
SR-241

Subject: Baker Water Treatment Plant Project

Dear Mr. Weghorst,

Thank you for the opportunity to review and comment on the **Draft Environmental Impact Report (DEIR) for the Baker Water Treatment Plant Project**. The proposed project will include a new offsite pump station near Peters Canyon Reservoir; a new non-reclaimable waste pipeline (NRW) to convey NRW from Baker Water Treatment Plant (WTP) to IRWD's sanitary sewer; and may include new pipelines to convey treated water from Baker WTP to the South County Pump Station and Pipeline. The project would provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity and distribution infrastructure for potable water. The proposed WTP will be located at 21082 Wisteria Lane in the City of Lake Forest, and the proposed Raw Water Pump Station will be located at 9737 Peters Canyon Road in the City of Orange. The nearest State Route to the project is SR-241.

The Department of Transportation (Department) is a responsible agency on this project and we have the following comments:

1. A Traffic Management Plan (TMP) for construction vehicles should be submitted to Caltrans in order to minimize the impacts to State highway facilities, particularly Interstate 5. Coordination of this project with other construction activities on I-5 and SR-241 may be needed. Any hauling of materials should not occur during A.M and P.M peak periods of travel on State facilities during demolition and construction of the proposed project. All vehicle loads should be covered so that materials do not blow over or onto the Department's Right-of-Way.

1

Please continue to keep us informed of this project and any future developments, which could potentially impact the State Transportation Facilities. If you have any questions or need to contact us, please do not hesitate to call Marlon Regisford at (949) 724-2241.

Sincerely,

Christopher Herre, Branch Chief
Local Development/Intergovernmental Review

Paul A. Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92619
weghorst@irwd.com
Phone: 949-453-5632
Fax: 949-453-0228
Cell: 949-485-8115

>>> "Glenn Robertson" <groberson@waterboards.ca.gov> 3/8/2011 3:52 PM >>>
To Paul Weghorst, Principal Water Resources Manager, Irvine Ranch Water District:

Paul, in lieu of a letter from the Regional Water Quality Control Board, you may wish to either 1) credit this email as part of the CEQA comment period (ending tomorrow) for the Environmental Impact Report for the above project (SCH# 2010051055), or 2) simply accept this message.

To the existing Baker Filtration Plant (on Wisteria in Lake Forest), you propose addition of the Baker Treatment Plant. About 28 MGD of raw water (sources: MWD import, Irvine Lake, etc.) will be treated by membrane, UV, and chloramination. Emergency overflow may be needed occasionally through a pipe outlet constructed in an adjacent ravine. Following my consultation with our Permitting Section staff, including Chief Gary Stewart, we have the following concerns:

1) The pipe outlet may require "dredge and fill" activity within waters of the U.S., as generally acknowledged in the EIR. Please consult with the U.S. Army Corps of Engineers to see whether they will take jurisdiction pursuant to Clean Water Act Section 404; if so, please apply to this office for the prerequisite Clean Water Act Section 401 Water Quality Standards Certification. The Regional Board may potentially issue Waste Discharge Requirements (WDRs) for this construction if the Corps does not take jurisdiction. Please advise our office either way.

1

2) IRWD is enrolled in both NPDES permits for *de minimus* discharges applicable to Orange County, including that *de minimus* general WDRs for discharges to the Upper Newport Bay watershed (Lake Forest). Please ensure that the proposed chlorinated discharge does not exceed that permit's chlorine residual limit.

2

Thank you very much Paul
Glenn Robertson, RWQCB-8

Glenn Robertson, Engineering Geologist
CEQA Coordinator
California Regional Water Quality Control Board, Santa Ana Region (8)
3737 Main Street, Suite 500
Riverside, CA 92501-3348
(951) 782-3259
Fax (951) 781-6288
Email groberson@waterboards.ca.gov
Website: www.waterboards.ca.gov/santaana



CITY OF ORANGE

DEPARTMENT OF COMMUNITY DEVELOPMENT

www.cityoforange.org

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(714) 744-7240
fax: (714) 744-7222

PLANNING DIVISION
(714) 744-7220
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BUILDING DIVISION
(714) 744-7200
fax: (714) 744-7245

CODE ENFORCEMENT DIVISION
(714) 744-7244
fax: (714) 744-7245

March 8, 2011

Attn: Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA. 92618

#04-11
via email: weghorst@irwd.com

Subject: Draft Environmental Impact Report (EIR) for the Irvine Ranch Water District (IRWD) Baker Water Treatment Plant Project.

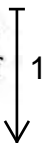
Dear Mr. Weghorst,

Thank you for providing the City of Orange (City) with the Draft EIR for IRWD's Baker Water Treatment Plant project. The project generally consists of the construction of a new Water Treatment Plant and treated water conveyance pipelines within the City of Lake Forest. Raw water supply for the system is proposed to come from Irvine Lake and imported Metropolitan Water District (MWD) water and would be conveyed via existing pipelines to the existing Baker Pipeline and ultimately to the proposed Baker Water Treatment Plant. To deliver water from Irvine Lake to the Baker Pipeline, the project includes construction of a new pump station at the existing Baker/Irvine Lake Pipeline Flow Control Facility near Peters Canyon Reservoir within City of Orange jurisdiction.

Construction of the pump station would involve demolition of the existing 600 square foot intertie building, and construction of a 1,800 square foot building (20 feet high) to house three 300-horsepower pumps, a control valve, and two pressure relief valves. In addition, a 12-foot diameter surge tank (approximately 14 feet tall and 28 feet wide) would be constructed outside of the pump station within a 1,500 square foot disturbance area. An eight foot block wall is proposed to screen the surge tank.

The City previously commented on this project during the Notice of Preparation phase, in a letter dated June 17, 2010 (attached). The City expressed concern regarding potential project impacts in the areas of aesthetics, noise, traffic and land use. Our comments on the Draft EIR focus on those specific issues previously raised in our NOP letter, as follows:

1. **Aesthetics-** In the City's NOP comment letter, we requested that the EIR include view simulations from residences in the surrounding area, and Peters Canyon Regional Park. If



improvements were visible, the City requested landscape treatments that would minimize views from surrounding residential areas and provide an appropriate visual transition between the project site and surrounding open space areas.

Neither view simulations nor information regarding landscape treatments were provided in the EIR. Section 3.1 (Page 3.1-2) of the EIR states that the facility is screened from view from Jamboree by fencing and vegetation, and in subsequent pages concludes that because the project is located on a site that is already developed with water infrastructure, visual character and viewscape impacts would be less than significant. In addition, on Page 2-7, the EIR states that the building would be designed with a similar appearance to adjacent buildings onsite (no design details are provided) and later concludes that visual impacts are less than significant because the proposed structure would be of similar height to the existing buildings.

Although the site already contains water infrastructure, the proposed project represents an expansion of those facilities that will be visible from Jamboree Road, and also from Santiago Canyon Road and Canyon View (to a lesser extent). The existing fence onsite is of a chain link variety and does not screen views. The handful of mature trees onsite provide some intermittent screening. However, the majority of onsite and adjacent vegetation consists of low growing coastal sage scrub and will also not be effective at screening views of the proposed eight-foot to 20-foot high structures. Given the project site's location within a regional open space park and within view of hillside residences, the City feels that architectural design, color palette, and landscape screening warrant particular attention and are important to the analysis of visual compatibility.

As such, the City requests that the project design incorporate dense landscaping including large native trees (compatible with biological communities in the adjacent Peters Canyon Regional Park) along the north and east sides of the site perimeter to screen views of the facility. In order to accomplish this, we request that Mitigation Measure AES-1 be modified. This measure requires IRWD to prepare a landscape plan that includes site perimeter landscaping to screen views at the Baker Treatment Plant site in the City of Lake Forest. We request this measure be modified to apply the same requirements and considerations to the proposed pump station in the City of Orange.

The City also requests that the EIR provide information regarding the proposed materials and color palette for the building, surge tank, and wall, demonstrating that the project will in fact be integrated with the existing facility and blend to the greatest extent possible with the surrounding open space area. Further, the City requests that IRWD take the project through our "Design Review" process as a means of ensuring that the project design is compatible with the surrounding area. Our Design Review Committee is a City Council-appointed body made up of design professionals whose specific function is to ensure visual compatibility of projects in Orange.



The City finds that these modifications to the project and EIR are necessary to ensure project impacts related to visual compatibility with the surrounding area are less than significant and to ensure an adequate CEQA process.

↑
1

- 2. **Noise-** In the City’s NOP comment letter, we requested that the EIR quantify operational noise from the pump station and evaluate whether the noise will be audible at nearby existing and planned residential uses (e.g. the residences north of Canyon View and the approved Santiago Hills II residential development, east of Jamboree Road).

In Section 3.10 of the EIR (Page 3.10-10), the EIR concludes that operational noise impacts would be less than significant because the pumps would be enclosed and the project would be designed to comply with City ordinance. The EIR does not provide any analysis to support this conclusion. Please expand this discussion to better explain how project design would address operational noise. For example, provide an estimate of noise generated by the proposed three 300-horsepower pumps and identify the level of noise attenuation that could be reasonably expected from the proposed enclosure and distance to sensitive receptors. Please also estimate operational noise from the proposed surge tank (which is not enclosed) and explain whether tank noise would comply with City code or otherwise be audible at the nearest sensitive receptors. If noise is projected to be audible at sensitive receptors, the City requests the EIR identify those specific design features that will reduce noise to less than significant levels. In addition, Mitigation Measure NOISE-3 requires IRWD to conduct a post-construction noise survey to ensure operational noise at the Baker Treatment Plant in Lake Forest complies with City code. The City requests that NOISE-3 be modified to apply the same requirements and considerations to the proposed pump station in the City of Orange.

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Please also note that EIR Page 3.10-9 and -10 states that the nearest sensitive receptor is 1,190 feet *south* of the pump station. This should be corrected to state that residences north of Canyon View are the nearest sensitive receptors and are located 1,190 feet *north* of the proposed pump station. Per our NOP comment letter, please also address the approved (but not yet constructed) Santiago Hills II residential development east of Jamboree as a sensitive receptor. This site is located 120 feet east of the proposed pump station. Tentative Tract Maps for development of this area with 1,642 residential dwelling units ranging from single family residences to condominiums were approved by the City in 2005. Potential operational noise impacts to this approved development are important to the City.

We find that these modifications to the project and EIR are necessary to ensure project noise impacts are less than significant and to ensure an adequate CEQA process.

- 3. **Land Use-** The City acknowledges that the EIR correctly states that a conditional use permit (CUP) is required for public/private utility buildings and structures in recreation open space zones, per the City’s Zoning Code. Page 3.9-8 of the EIR states that water facilities are not subject to City zoning requirements, per Government Code Section 53091 and therefore IRWD will not obtain a CUP from the City. Notwithstanding, as stated in our NOP letter, the City continues to request that IRWD take the project through our “Site Plan Review” and

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3

March 8, 2011
City of Orange comment letter
Page 4 of 4

“Design Review” process as a means of ensuring that the site and architectural design are compatible with the surrounding area.

4. **Other Permits/Approvals:** The City acknowledges that the EIR correctly states that the project Contractor may be required to obtain a City transportation, haul, or both permits if the project involves dirt hauling or oversized vehicles on City streets. EIR Page 2-17 should note that a City demolition permit, grading permit, and building permit will also apply.

Thank you for your consideration of our comments. We look forward to receiving the response to comments and Final EIR upon completion. If you have any questions, please contact Jennifer Le, Senior Planner/Environmental Review Coordinator at (714) 744-7238.

Sincerely,



Alice Angus
Community Development Director

cc: John Sibley, City Manager
Joe DeFrancesco, Public Works Director
Michael Wolfe, Acting Operations and Maintenance Manager
Fred Adjarian, Acting Water Manager
Amir Farahani, City Traffic Engineer
Jennifer Le, Senior Planner/Environmental Review Coordinator

Enclosure

↑ 3
|
| 4
|



CITY OF ORANGE

DEPARTMENT OF COMMUNITY DEVELOPMENT

www.cityoforange.org

ADMINISTRATION
(714) 744-7240
fax: (714) 744-7222

PLANNING DIVISION
(714) 744-7220
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BUILDING DIVISION
(714) 744-7200
fax: (714) 744-7245

CODE ENFORCEMENT DIVISION
(714) 744-7244
fax: (714) 744-7245

June 17, 2010

Attn: Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA. 92618

#20-10
via email: weghorst@irwd.com

Subject: Notice of Preparation (NOP) of an Environmental Impact report (EIR) for the Irvine Ranch Water District (IRWD) Baker Water Treatment Plant Project.

Dear Mr. Weghorst,

The City of Orange (City) has reviewed the NOP for an EIR for IRWD's Baker Water Treatment Plant project. It is our understanding that the project consists primarily of construction of a new Water Treatment Plant and treated water conveyance pipelines within the City of Lake Forest. Raw water supply for the system is proposed to come from Irvine Lake and imported Metropolitan Water District (MWD) water and would be conveyed via existing pipelines to the existing Baker Pipeline and ultimately to the proposed Baker Water Treatment Plant. To deliver water from Irvine Lake to the Baker Pipeline, it is our understanding that the project includes ~~construction of a new pump station at the existing Baker/Irvine Lake Pipeline Flow Control Facility near Peters Canyon Reservoir.~~ This proposed pump station is within City of Orange jurisdictional boundaries. As such, the City may be a "responsible agency" under the California Environmental Quality Act (CEQA) and may use the project EIR for CEQA compliance purposes if and when any discretionary actions are taken.

The City would appreciate consideration of the following comments related to the above ground pump station proposed within Orange jurisdiction. Note that the NOP's description of the pump station was general and therefore the comments below are also general. The City will be looking for additional project description details related to the pump station within the Draft EIR.

1. **Aesthetics-** As stated in the NOP, the proposed pump station is located within and adjacent to Peters Canyon Reservoir (which is designated Open Space in our City General Plan and zoning code). The site is also surrounded by residential uses. The City requests that the EIR include view simulations for sensitive visual receptors in the surrounding area such as residential uses, and Peters Canyon Regional Park users. If the proposed pump station is visible, the City requests landscape treatments that would minimize views from surrounding

residential areas and provide an appropriate visual transition between the project site and surrounding open space areas.

2. **Noise-** As stated in the NOP, the proposed project would generate noise that could affect nearby sensitive receptors. The City requests that the EIR quantify operational noise from the pump station and evaluate whether the noise will be audible at nearby existing and planned residential uses. (For example, the Santiago Hills II residential development has been approved for the area east of Jamboree Road, but is not yet constructed). In addition, the EIR should evaluate whether construction and operational noise could affect sensitive biological communities located at the adjacent Peters Canyon Regional Park.
3. **Traffic-** As stated in the NOP, the project could add traffic trips to local streets during construction of the project. The City requests that the EIR quantify construction traffic trips associated with the pump station and include mitigation measures (if appropriate) such as limiting construction haul trips to non-peak traffic hours. Note that a City transportation, haul or both permits may be required if the project involves dirt hauling or oversized vehicles on City streets. Hauls in excess of 30,000 cubic yards requiring the use of City streets will require City Council approval and compliance with additional measures and conditions. Also, the City requests that the EIR evaluate whether site access for the proposed project at Jamboree Road is designed appropriately and safe.
4. **Land Use-** The City is interested in the evaluation of project consistency with the City's General Plan land use designations, policies and zoning provisions, and also project compatibility with surrounding land uses. In addition, please note that new construction within the City typically undergoes a "Site Plan Review" and "Design Review" process to ensure that proposed site and architectural design meets City standards and is visually compatible with the surrounding area. The City requests that the project undergo this review, both to ensure interagency coordination and also as a means of mitigating aesthetic and other environmental effects related to site design.

~~Thank you for the opportunity to provide comments on the NOP. If you have any questions, please feel free to contact Jennifer Le, Senior Planner/Environmental Review Coordinator at (714) 744 7238.~~

Sincerely,



Alice Angus
Community Development Director

cc: Joe DeFrancesco, Public Works Director
Amir Farahani, City Traffic Engineer
Michael Wolfe, Acting Water Manager
Jennifer Le, Senior Planner/Environmental Review Coordinator



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

E-MAILED: March 10, 2011

March 10, 2011

Mr. Paul Weghorst, Weghorst@irwd.com
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

**Draft Environmental Impact Report (Draft EIR) for the Proposed IRWD Baker
Water Treatment Plant**

The South Coast Air Quality Management District (AQMD) appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final CEQA document.

In the project description, the lead agency proposes construction at multiple sites. At the Baker Water Treatment Plant (Baker WTP), the lead agency proposes the demolition of two small buildings and a 3.4 million gallon water reservoir. The Baker WTP would also include construction of the Raw Water Conveyance Facilities (including 1,100 linear feet of pipeline); Treatment Facilities; Treated Water Facilities; and Emergency Overflow Facilities. The total amount of building debris would be approximately 10,000 cubic yards and the total building area would be about 26,250 square feet. Construction of 2,500 linear feet of sewer pipeline along Serrano Creek Trail would also occur. Both the treated water pipeline and the sewer pipeline construction would occur adjacent to residential areas. At a second site, the Raw Water Pump Station, construction activities would include minor demolition, excavation and construction with an approximate one-acre construction footprint.

In the Draft EIR on page 2-17, the lead agency also cites compliance with the following AQMD Rules 201 and 203: Permit to Construct and Permit to Operate. Based on the project description, permit applications would be required for the proposed disinfection facility, chemical storage, and standby generators. In addition, permits may also be required for the stored chemicals: aqueous ammonia, ferric chloride, hydrochloric acid and citric acid. In addition to permits, the lead agency should also include operational emission estimates from storage and use (disinfection) of the above chemicals along with the emissions from the lead agency's estimate of 20-50 hours per year from the standby generators. These generators would be operated during regular maintenance even if the water plant is not used. These emission estimates, along with any emission factors, methodologies used, equations, etc., should be included in the Final EIR. Questions regarding permits can be directed to AQMD staff at (909) 396-2684.

1

Mr. Paul Weghorst,
Principal Water Resources Manager

March 10, 2011

In addition to evaluating the above-mentioned air quality impacts, the AQMD recommends that the lead agency estimate localized air quality impacts to ensure that any nearby sensitive receptors are not adversely affected by the construction activities that are occurring in close proximity. It is noted in Figure 2-2 and in an aerial map inspection that the proposed project is located within one-quarter mile of sensitive receptors (residential property) north and west of the proposed Baker WTP proposed project site and north of the proposed Raw Water Pump Station. AQMD guidance for performing a localized air quality analysis can be found on the AQMD web page.¹ Should the lead agency conclude after its analyses that construction or operational localized air quality impacts exceed the AQMD daily significance thresholds, staff has compiled mitigation measures that can be implemented if the air quality impacts are determined to be significant.²

2

Pursuant to Public Resources Code Section 21092.5, please provide the AQMD with written responses to all comments contained herein prior to the adoption of the Final Environmental Impact Report. The AQMD staff is available to work with the Lead Agency to address these issues and any other air quality questions that may arise. Please contact Gordon Mize, Air Quality Specialist – CEQA Section, at (909) 396-3302, if you have any questions regarding these comments.

3

Sincerely,



Ian MacMillan
Program Supervisor, Inter-Governmental Review
Planning, Rule Development & Area Sources

IM:GM

ORC110125-03
Control Number

¹ <http://www.aqmd.gov/ceqa/handbook/LST/LST.html>
² http://www.aqmd.gov/ceqa/handbook/mitigation/MM_intro.html

with (3)

photo graphs during day - Light hours, submitted 6/17/12

(1) photograph during LATE SUNSET submitted 3/18/11.

ENGINEERING & PLANNING

FEB 08 2011

IRVINE RANCH WATER DISTRICT

Irvine Ranch Water District Baker Water Treatment Plant Project

NOP Scoping Meeting

Comment Card

Written comments may be submitted tonight during the meeting or mailed to Paul Weghorst. The NOP comment period ends June 17, 2010.

ENGINEERING & PLANNING

JUN 17 2010

IRVINE RANCH WATER DISTRICT

Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92618-3102

Draft Environmental Impact Report, the comment period ends March 9, 2011

I have the following comments regarding the Notice of Preparation (NOP) for the subject project:

- ① existing / future Aesthetic quality scenic view should encompass all present / future proposed obstructions / constructions on water Department property. See the "big" picture before starting project. | 1
- ② Reason for Choosing site ① elevation ② water Department owns land ③ provides needed services check the trust deed & make sure water Department is not Leasing Land | 2
- ③ check for plugged oil wells on property or near by, | 3
- ④ Air Quality Monitor gigahertz radiation transmission for health purpose because the BAKE treatment site is surrounded by residential & it could effect those with immune, dehydration, Epson Barr, heart pacers, etc | 4
- ⑤ Geology / Soil + Seismicity check all Faults + Fissures on property & close by. New maps recently available from U.S Geological Survey | 5
- ⑥ Guarantee good monitoring system that would detect Ammonia based Leaking into water TABLE. | 6
- ⑦ Build Holding tanks containing water / Ammonia based chemicals to the correct earthquake specifications, | 7

FEB 2011 I would like further clarification on existing previous questions.

Name: Peggy Falcon

Phone: (949) 855-2869

Address: 21315 McIntosh

LAKE Forest

Continued -

① existing / Future Aesthetic Quality, ... During NOP Page 2 of 6 comment submitted (3) daylight photographs showing scenic view + open space. During Draft Environmental Impact Report I am submitting (1) late sunset photograph All taken while standing in my backyard. Notice the red bar on horizon.

② Reason for Choosing site... Another reason for choosing site is, the pipeline is in place. The Water Department has acknowledged a few connections where new piping will be placed. On 3-7-11, Ted Simon said, both Public Work and Planning noticed missing piping & this information was given to Irvine, ^{Parish} Water District.

③ Check for Plugged oil wells, ... The Baker Water Treatment Project Draft Environmental Impact Report page 3.7-2 stated there are (4) abandoned wells in Lake Forest, what kind of dry wells? Is it located on water department's land?

④ Air Quality / Air Waves Quality, ... Emission frequencies should be disclosed. Requested letter from Kevin Burton Director of Engineering that additional space on tower would not be rented / leased for extra revenue.

⑤ Geology / Soil & Seismicity, Seismic Activity & MAP, figure 3.6-1 did not include San Juan Capistrano (South of Lake Forest) in the vicinity of Lake Forest? What is the name of earthquake fault?

⑥ Guarantee Good monitoring system, ... Does the design / instrumentation planning exist for monitoring of leakage into water table.

⑦ Build holding tanks, ... No city Building Permits required. What seismic Building standard / codes will be used? Will you employ your own inspectors during the verbal comment

On May 26, 2010, Scoping meeting, was made addressing any odors and frowd what chemicals / emissions. List another site where odors would be comparable:

Referring to page ES-19 in Draft Environmental Impact Report — will hazardous material that could create significant hazard to public use routine truck transportation / routine truck transportation for disposal of hazardous waste, How many estimated times of route transport would we expect in 1 year?



Paul A. Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92619
weghorst@irwd.com
Phone: 949-453-5632
Fax: 949-453-0228
Cell: 949-485-8115

>>> Fossils <fossils@cox.net> 3/9/2011 4:53 PM >>>

Hi Mr. Paul Weghorst

I was hoping to submit these comments for the draft EIR at the Baker water treatment plant. I know this is last minute but I think I made the deadline

1) I want to make sure there is no noise that comes from the plant. What assurances do we have?
It is silent now at night. I like to sleep with my window open and not hear noise.
Will you be conducting sound tests before and after the plant is in?

1

2) what will happen if chemicals leak from the storage facility? How will our neighborhood be affected? What are you doing to protect us?

2

3) Can we please plant the upper part of the slope along Wisteria and put in a better looking fence? Something without barbed wire preferably.

3

Thanks Dave Alexander
21091 Jenner
Lake forest ca 92630

**Irvine Ranch Water District
Baker Water Treatment Plant Project EIR
Public Meeting
February 9, 2011
7:00 p.m. presentation
15600 Sand Canyon
Irvine, CA 92618**

Public Meeting Verbal Comments

- What is the name of the head geologist for the proposed project? | 1
- The seismic activity south of Lake Forest, which is in a Seismic Zone 4, is not included on any maps or geologic analysis in the document. | 2
- What are the locations of the abandoned oil fields located in Orange County? | 3
- Specify the term “raw water” to whether or not it includes recycled or sewage water as a source of supply to the treatment plant. | 4
- If the proposed project is not treating sewage water, then why does the EIR state that there may be some odors associated with the proposed project? | 5
- Was a comment letter from the City of Lake Forest Public Works Department considered in the Draft EIR regarding missing pipelines in the project area? | 6
- Which seismic building standards will be applied to the design and construction of the proposed project, since the project would not require city building permits and would not have to comply with any permit requirements? | 7

CHAPTER 9

Responses to Comments

9.1 CEQA Requirements

Before IRWD, as the Lead Agency, may approve the proposed project, it must certify that the Final EIR: a) has been completed in compliance with CEQA; b) has been presented to the Board of Directors as the decision-making body for the Lead Agency, which reviewed and considered it prior to approving the project; and c) reflects IRWD's independent judgment and analysis.

CEQA Guidelines specify that the Final EIR shall consist of the following:

- the Draft EIR or a revision of that draft;
- comments and recommendations received on the Draft EIR;
- a list of persons, organizations, and public agencies commenting on the Draft EIR;
- the response of the Lead Agency to significant environmental points raised in the review and consultation process; and
- any other information added by the Lead Agency.

This Final EIR for the Baker Water Treatment Plan Project consists of:

- the revised public Draft EIR (Chapters 1 through 7);
- A list of persons, organizations, and public agencies commenting on the Draft EIR along with the written comment letters received (Chapter 8);
- A response to each comment received on the Draft EIR including any revisions made to the text of the Draft EIR in response to such comment (Chapter 9); and
- A compilation of revisions to the text of the Draft EIR made by the Lead Agency (Chapter 10).

9.2 Comments on the Draft EIR and Responses to Comments

The Draft EIR for the proposed project was circulated for public review for 45 days (January 24, 2011, through March 9, 2011). IRWD received nine comment letters during the public review period. Verbal comments also were received during the public meeting held on February 9, 2011.

Table 8-1 in Chapter 8 lists the comment letters received during the public review period for the Draft EIR. Comment letters also are included in Chapter 8, followed by a summary of oral

comments received during the public scoping meeting. The responses to comments are provided here in Chapter 9. Responses are numbered to correspond to the comment numbers that appear in the margins of the comment letters and summary of oral comments.

9.3 Corrections and Additions to the Draft EIR

Revisions to the Draft EIR were developed in response to comments received during the public review period. The revisions appear as indented text in the responses. Where the responses indicate additions or deletions to the text of the Draft EIR, additions are indicated in underline and deletions in ~~strikeout~~. A summary of all corrections and additions are compiled in Chapter 10.

9.4 Comment Letter Responses

Letter 1, California Department of Toxic Substances Control

Comment DTSC-1

The comment states that the EIR should evaluate whether conditions in the Project area may pose a threat to human health or the environment. The comment lists databases associated with some of the regulatory agencies.

Response DTSC-1

As required by CEQA, a search of Cortese List databases (per Government Code 65962.5) was conducted for locations of hazardous materials sites in the project area. As determined on page 3.7-3, 3.7-10, and 3.7-11 of the Draft EIR, there were no hazardous materials/hazardous waste sites within one-quarter mile of any of the project sites.

Comment DTSC-2

The comment states the EIR should identify the mechanism required to initiate any required investigation and/or remediation for any site within the proposed Project area that may be contaminated, and the government agency to provide appropriate regulatory oversight.

Response DTSC-2

If hazardous materials are discovered during project implementation, the appropriate regulatory agencies with jurisdiction over the materials would be notified, and IRWD would comply with existing hazardous waste handling and disposal regulations.

Comment DTSC-3

The comment states that any environmental investigations, sampling and remediation for the site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The EIR should summarize the findings of any investigations, including a table summarizing all hazardous substances found above regulatory standards. All closure, certification or remediation approval reports by regulatory agencies should be included in EIR.

Response DTSC-3

As described on page 3.7-3 of the Draft EIR, a preliminary hazardous materials assessments for the Baker site and Raw Water Pump Station site have indicated the presence of lead-based paint and asbestos-containing materials (ACM) in existing structures to be demolished as a result of the proposed project (Panacea, Inc., 2010a, 2010b). As described on page 3.7-12 of the Draft EIR, IRWD would be required to comply with all federal and state regulations pertaining to worker protection against exposure to such hazardous materials, including Cal OSHA regulations. In addition, IRWD would be required to comply with all federal and state regulations pertaining to abatement or disposal of hazardous materials and wastes to protect public health and the environment. If necessary to protect worker health and safety, ACM would be removed prior to demolition of structures. No mitigation measures are necessary.

IRWD would determine what, if any, additional investigations or sampling are necessary prior to project construction to determine if any additional hazardous materials are present at the project sites. IRWD would be required to comply with all federal and state regulations pertaining to abatement or disposal of hazardous materials and wastes to protect public health and the environment. IRWD would contact the appropriate regulatory agencies with jurisdiction over any and all hazardous substances and develop a Workplan if necessary.

Comment DTSC-4

The comment states that if buildings, structures, or other asphalt/concrete-paved surface areas are planned to be demolished, an investigation should be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). The comment requests that proper precautions take place during demolition activities of any identified hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs identified, and the contaminants should be remediated in compliance with California environmental regulations and policies.

Response DTSC-4

See Response DTSC-3.

Comment DTSC-5

The comment states that project construction may require soil excavation or filling and thus sampling may be required. Contaminated soils must be properly disposed. Land Disposal Restrictions (LDRs) may be applicable to the soils. Any imported soils to be used for backfill should be sampled to ensure it is free of contamination.

Response DTSC-5

If contaminated soils are encountered during project construction, IRWD would be required to comply with the USEPA's Land Disposal Restrictions (LDR) Program before disposing of such soils in any landfill. The LDR Program ensures that toxic constituents present in hazardous waste are properly treated before hazardous waste is land disposed. IRWD would ensure that any contaminated soils are treated to the standards required by the LDR Program before being placed in a landfill. Any imported soils used for backfill for the proposed project would be engineered fill, with documented constituents and characteristics, to ensure it is free of contamination.

Comment DTSC-6

The comment states that human health and the environment of sensitive receptors should be protected during construction or demolition at the site. The comment requests, if necessary, a health risk assessment overseen by the appropriate government agency and conducted by a qualified health risk assessor to determine if any potential releases of hazardous materials may pose a health or environment risk.

Response DTSC-6

The Draft EIR determines on page 3.3-25 that sensitive receptors would not be adversely affected during project construction due to toxic air contaminants. IRWD has determined that a health risk assessment is not required. All schools are more than one-quarter mile from the project sites (DEIR, page 3.7-10). An assessment of the risks to the public or environment associated with the routine transport, use, or disposal of hazardous materials is assessed in the Draft EIR on pages 3.7-11 through 3.7-13. Mitigation Measure HAZ-1 includes BMPs that the construction contractor would be required to implement to prevent the accidental release of hazardous materials during construction.

Comment DTSC-7

The comment states that soils and groundwater at the project site may contain pesticides, agricultural chemical, organic waste or other residue if the site was previously used for agricultural activities. The comment requests proper investigations and remedial actions conducted by a government agency before project construction, if necessary.

Response DTSC-7

If soils contaminated with agricultural chemicals are discovered during project implementation, the appropriate regulatory agencies with jurisdiction over the materials would be notified, and IRWD would comply with existing hazardous waste handling and disposal regulations. The proposed project is not expected to affect groundwater.

Comment DTSC-8

The comment states that if hazardous wastes will be generated by the project, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If hazardous wastes will be generated, the facility should obtain a United States Environmental Protection Agency Identification Number. The comment states that authorization from the local Certified Unified Program Agency (CUPA) may be required for certain hazardous waste treatment processes or hazardous materials, handling, storage or uses, and suggests contacting the local CUPA.

Response DTSC-8

The applicability of the California Hazardous Waste Control Law to the project is acknowledged in the Draft EIR on page 3.7-6. The applicability of the Unified Program and identification of the Orange County Environmental Health Division as the local CUPA can be found in the Draft EIR on page 3.7-8. The proposed project would not generate hazardous wastes but would require handling, storage, and use of hazardous materials. As such, IRWD would prepare a Risk

Management Plan, which would be kept on file with the Orange County Fire Authority and USEPA (DEIR, page 3.7-11). IRWD also would prepare a Hazardous Materials Business Plan and Emergency Response Plan, which would be submitted to local health and fires departments.

Comment DTSC-9

The comment states that DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties.

Response DTSC-9

The comment is noted.

Letter 2, Metropolitan Water District of Southern California

Comment MWD-1

The comment requests that the Final EIR clarifies Metropolitan's role as a Responsible Agency. The comment requests modification of the statement "approval for AMP connection" to "approve AMP interconnection and pipeline use" in Section 2.6 of the EIR (Project Approvals) in discussing Metropolitan as a Responsible Agency.

Response MWD-1

The following paragraph in Section 2.6 has been revised to further clarify Metropolitan's role as a Responsible Agency for the proposed project:

Page 2-16:

As Lead Agency, IRWD may use this EIR to approve the proposed project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts. Responsible Agencies having discretionary approval over components of the project include ETWD, MNWD, SMWD, TCWD, MWDOC, and Metropolitan Water District of Southern California.

In addition, as requested the description of the approval required from Metropolitan has been revised as follows:

Page 2-17:

Metropolitan Water District of Southern California: ~~Approval for AMP connection~~Approve AMP interconnection and pipeline use

Letter 3, County of Orange – Public Works

Comment OC Public Works-1

The comment requests notification to the County of Orange of who owns the land where the Emergency Overflow Facility would be constructed.

Response OC Public Works-1

IRWD does not own the property where the proposed Emergency Overflow Facility would be located. The owner is either the City of Lake Forest or the County of Orange.

Comment OC Public Works-2

The comment states the Draft EIR is unclear what would keep the 100 feet between the Emergency Overflow Facility and the low flow channel of Serrano Creek from eroding in response to the possible 54 CFS emergency discharge that could last “for several hours,” as described on page 3.8-16. If rip rap is emplaced over this area, Figure 3.4-2 of the Draft EIR would need to be revised to delineate that as an impact.

Response OC Public Works-2

As part of the Emergency Overflow Facility (EOF) design, riprap is proposed to be placed at the outlet of the pipe to reduce the velocity of flow in the pipe to non-erosive velocities. The riprap would be placed within the trapezoidal footprint of the EOF that is depicted in Figure 3.4-2. Therefore, in the unlikely event that the EOF is utilized, there would be no significant increase in erosion that would occur between the EOF and the low flow channel of Serrano Creek as a result of the discharge. No additional riprap would be placed between the EOF and the low flow channel of Serrano Creek.

Comment OC Public Works-3

The comment requests the EIR address the potential for downcutting between the end of the Emergency Overflow Facility’s footprint and the low-flow channel of Serrano Creek, and within Serrano Creek itself below that point. The comment states additional clear water discharges have the potential to further destabilize the channel, which is already subject to severe downcutting.

Response OC Public Works-3

The EOF is for emergency discharges only. Controls will be incorporated into the project design to reduce the possibility of the EOF being used, such as monitoring of water levels within the plant using SCADA; local and remote alarms at the forebay and chlorine contact basin that are activated prior to overflow levels being reached; and automatic increases in pumping when high water levels are reached to prevent overflow from occurring. Serrano Creek at the EOF discharge location has an estimated peak flow rate of approximately 3,700 cfs during a 100-year storm event, based on prorating the flow rate from the approved San Diego Creek Flood Control Master Plan for the tributary area to the discharge point. The overflow discharge of 54 cfs is insignificant (less than 2%) compared to the creek flow during storm events and is not anticipated to adversely impact the on-going erosion or downcutting in the creek. Any local erosion at the EOF outlet as a result of a release during an emergency situation will be repaired by IRWD.

Comment OC Public Works-4

The comment states the EIR must address who owns the low flow channel into which discharges would occur and whether the owner has consented to accepting them.

Response OC Public Works-4

IRWD does not own the property where the proposed EOF would be located. The owner is either the City of Lake Forest or the County of Orange. IRWD will submit an encroachment permit application to both the City and the County. If a response is received, then acceptance and issuance of the encroachment permit would constitute the acceptance of the flow by the owner. If no response is received from either party, then IRWD will proceed with the project.

Comment OC Public Works-5

The comment states the EIR should discuss the chemical and pollutant characteristics of the emergency discharges from all potential sources and how they might impact Serrano Creek flows. The comment states that the EIR does not address whether the emergency overflow facility is an appropriate use for a water body with multiple beneficial uses identified as impaired on the most recently approved Clean Water Act Section 303(d) list for California (2006).

Response OC Public Works-5

In the unlikely event that the EOF is utilized, the emergency discharge would include raw water that overflows from the forebay and water from the chlorine contact basin. The project design would include dechlorination facilities and monitoring facilities downstream of all overflow points within the Baker WTP and upstream of the emergency discharge point. The dechlorination facilities would neutralize the chlorine in the emergency discharge water, and water quality would be monitored to confirm the dechlorination facilities are effective. As a result, there would be no chemicals or pollutants released into Serrano Creek. No beneficial uses would be affected, and no further impairment would be imposed on Serrano Creek or other downstream water bodies in accordance with the Clean Water Act Section 303(d) list for California (2006).

Comment OC Public Works-6

The comment states that the preparation of a Water Quality Management Plan (WQMP) may not itself mitigate the impacts of the potential pollutant discharge to Serrano Creek.

Response OC Public Works-6

As stated above in Response OC Public Works-5, there would be no chemicals or pollutants released into Serrano Creek in the unlikely event that the EOF is utilized and emergency discharges occur.

Comment OC Public Works-7

The comment states that the project should plan for a combined storm water/emergency flow structural water quality treatment (or bio-treatment) best management practice (BMP) at the coordinated discharge location.

Response OC Public Works-7

As stated above in Response OC Public Works-5, there would be no chemicals or pollutants released into Serrano Creek in the unlikely event that the EOF is utilized and emergency discharges occur. No beneficial uses would be affected by the proposed project, and no further impairment would be imposed on Serrano Creek or other downstream water bodies. The emergency discharge associated with the EOF is fundamentally different than the storm drain

discharge that would be associated with the future residential development mentioned in the Biological Resources Assessment. Storm drains are associated with wet season and dry season runoff that occurs throughout the year. Such discharges have different water quality characteristics than the EOF emergency discharges and, as such, differing potential to affect Serrano Creek. The proposed EOF will remain separate from any future storm drain facilities associated with the planned neighboring development.

Letter 4, Department of Transportation – District 12

Comment Caltrans-1

The comment states that a Traffic Management Plan (TMP) for construction vehicles should be submitted to Caltrans in order to minimize the impacts to State highway facilities. The comment suggests that hauling construction materials should not occur during peak travel times on State facilities and all vehicles loads should be covered.

Response Caltrans-1

According to the Transportation Management Plan Guidelines (Caltrans, 2009), a Transportation Management Plan (TMP) is required for roadway construction projects on the State Highway System in order to minimize additional congestion and delays on State highways due to work-related activities. The 2009 Guidelines indicate that if a construction project causes individual traffic delays of 30 minutes or more above a motorist's normal travel time, then it would constitute a significant impact. Construction of the proposed project would not require the presence of any work zones or lane closures on I-5 or SR-241 and would have no direct impact to State highway facilities. IRWD does not anticipate that the proposed project would result in additional traffic delays of 30 minutes due to the potential presence of construction-related vehicles traveling on State roadways. Therefore, IRWD would not be required to prepare a TMP for the proposed project. IRWD, its contractors, and its equipment suppliers would comply with all jurisdictional requirements for transportation of construction vehicles and equipment.

Letter 5, California Regional Water Quality Control Board – Santa Ana Region

Comment RWQCB-1

The comment requests that IRWD consult with the U.S. Army Corps of Engineers (USACE) regarding their potential jurisdiction pursuant to Clean Water Act Section 404 due to the construction and operation of the Emergency Overflow Facility. If Section 404 is applicable to the proposed project, the RWQCB requests that IRWD apply for the requisite corresponding Clean Water Act Section 401 Water Quality Standards Certification. If the Emergency Overflow Facility is not under the jurisdiction of the USACE, then the RWQCB may issue Waste Discharge Requirements (WDRs) for construction of the Emergency Overflow Facility.

Response RWQCB-1

The Draft EIR acknowledges that Clean Water Act Sections 404 and 401 may apply to the proposed project. As stated on page 3.4-23 of the Draft EIR:

IRWD would be required to obtain a Clean Water Act Section 404 Individual or Nationwide Permit from the USACE, a Clean Water Act Section 401 Water Quality Certification from the Regional Water Quality Control Board, and a Fish and Game Code 1602 Streambed Alteration Agreement (SAA) from CDFG for any discharge structure and dissipation features that would be installed within the creekbed. IRWD would be required to comply with all conditions associated with the Section 401, Section 404, and/or CDFG SAA permits. Implementation of Mitigation Measures BIO-8 and BIO-9 would reduce impacts to jurisdictional resources to a less than significant level.

Mitigation Measures

BIO-8: Construction activities within Serrano Creek shall be limited to dry season periods to avoid wet weather flow conditions in the creekbed.

BIO-9: No activities shall occur within Serrano Creek until appropriate permits have been obtained from the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Game.

In accordance with Mitigation Measure BIO-9, IRWD would contact the RWQCB to determine the appropriate permit required for the proposed project, either a Clean Water Act Section 401 permit or WDRs.

Comment RWQCB-2

The comment states that the proposed chlorinated discharge must not exceed the NPDES permits for *de minimus* discharges applicable to Orange County, including *de minimus* general WDRs for discharge to the Upper Newport Bay watershed.

Response RWQCB-2

The Draft EIR acknowledges on page 2-17 that the project may require an NPDES permit for the Emergency Overflow Facility (EOF). In the unlikely event that the EOF is utilized, the emergency discharge would include raw water that overflows from the forebay and water from the chlorine contact basin. The project design would include dechlorination facilities and monitoring facilities downstream of all overflow points within the Baker WTP and upstream of the emergency discharge point. The dechlorination facilities would neutralize the chlorine in the emergency discharge water, and water quality would be monitored to confirm the dechlorination facilities are effective. As a result, the emergency discharges would not exceed any chlorine residual limits associated with NPDES permits or general WDRs.

Letter 6, City of Orange

Comment City-1

The comment reiterates the City's requests regarding aesthetics in its NOP letter and summarizes some of the conclusions of the EIR regarding impacts to visual character and viewsheds due to construction and operation of the proposed Raw Water Pump Station. The comment requests that Mitigation Measure AES-1 be modified to require a landscape plan for the Raw Water Pump Station and for project design to incorporate dense landscaping, including large native trees. The comment requests the EIR include the architectural design, proposed materials, and color palette for the proposed Raw Water Pump Station to demonstrate that the facilities will be integrated with the existing facility. The comment requests that IRWD take the project through the City's "Design Review" process to ensure that the project design is compatible with the surrounding area.

Response City-1

As stated in the Draft EIR, the proposed Raw Water Pump Station would be built in place of the existing Intertie facility, which currently is visible from Santiago Canyon Road and Jamboree Road (page 3.1-9). The proposed Raw Water Pump Station would be designed to be similar in height, size, and color as other adjacent buildings onsite. Any disturbance to the hillside around the perimeter of the site would be restored after construction. Therefore, the viewscape corridor from surrounding public vantage points would not be substantially altered, and as the Draft EIR concludes, the proposed project would not have a significant impact on viewscales or visual character of the site (pages 3.1-9 and 3.1-10). No landscape plan is required. The specific materials and color palette for the Raw Water Pump Station will be identified during the design phase of the project. Although IRWD is exempt from City zoning and building requirements, IRWD will work closely with City's staff in meeting the City's requirements and resolving any design-related issues.

Comment City-2

The comment reiterates the City's requests regarding noise in its NOP letter. The comment requests additional discussion to better explain how the project design would address operational noise and ensure the project would comply with City noise ordinances. The comment requests that the EIR address specific design features that will reduce noise to less than significant levels. The comment requests that Mitigation Measure NOISE-3 be modified to include a post-construction operational noise survey at the Raw Water Pump Station. The comment notes that the nearest sensitive receptors would be located north of the Raw Water Pump Station, not south as stated in the Draft EIR. In addition, the comment states that the EIR should address the approved Santiago Hills II residential development as a sensitive receptor.

Response City-2

The three pumps at the proposed Raw Water Pump Station would be enclosed in a building that would be designed such that the facility would comply with City noise ordinances at the property boundary. The latest design does not require a surge tank at the site; however, if a surge tank is installed, it would be designed to comply with City noise ordinances at the property boundary. If

the Santiago Hills II residential development is built, then this neighboring residential sensitive receptor would not be impacted because the operation of the Raw Water Pump Station would be in compliance with City noise ordinances at the property boundary. In response to the comment, the text of the Draft EIR and Mitigation Measures NOISE-3 has been modified as follows:

Page 3.10-9:

The nearest sensitive receptor to construction activities at the Raw Water Pump Station would be residences approximately 1,190 feet ~~south~~north. Table 3.10-1 shows that the greatest noise levels are associated with excavation and finishing and would be 89 dBA at a distance of 50 feet. Accordingly, attenuated at 1,190 feet, these residences would experience noise levels of up to 61 dBA Leq during finishing and excavation, the loudest of construction activities that would occur.

Page 3.10-10:

The Raw Water Pump Station is being constructed at the existing Intertie facility. The pumps at the proposed facility would be enclosed, and would be inaudible to the nearest sensitive receptor located approximately 1,190 feet to the ~~south~~north. Nonetheless, the proposed pump station would be designed for noise attenuation such that the sound levels would be in compliance with the City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards) at the property line. Implementation of Mitigation Measure NOISE-3 would ensure that project operation does not exceed noise standards by requiring post-construction noise monitoring to confirm compliance with standards at the property boundary. Impacts would be considered less than significant.

Page 3.10-11:

NOISE-3: IRWD shall conduct a post-construction noise survey to ensure that operation of new equipment at the Baker WTP and Raw Water Pump Station is in compliance with the City of Lake Forest Noise Ordinance (11.16.040 Exterior Noise Standards) and City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards) at the property boundary.

Comment City-3

The comment requests that IRWD take the project through the City's "Site Plan Review" and "Design Review" process to ensure site and architectural design are compatible with the surrounding area.

Response City-3

The comment is noted. Although IRWD is exempt from City zoning and building requirements, IRWD will work closely with City's staff in meeting the City's requirements and resolving any design-related issues.

Comment City-4

The comment states the EIR, on page 2-17, should note that the project Contractor may be required to obtain a City demolition permit, grading permit, and building permit.

Response City-4

Although IRWD is not required to obtain any demolition permit, grading permit, or building permit from the City, IRWD will work closely with the City staff in meeting the City's requirements and resolving any design or construction-related issues.

Letter 7, South Coast Air Quality Management District

Comment AQMD-1

The comment states the Final EIR should include emission estimates, emission factors, methodologies used and equations for the storage and use of aqueous ammonia, ferric chloride, hydrochloric acid and citric acid, in addition to estimates of emissions from the use of the standby generators.

Response AQMD-1

The proposed chemicals; aqueous ammonia, ferric chloride, hydrochloric acid, and citric acid are not considered VOCs. Therefore there would be no operational emissions from storage and use. Furthermore chemicals would be housed in a building with secondary containment in case of a spill. Section 3.7 Hazards and Hazardous Materials of the Draft EIR explains each chemical and includes Mitigation Measure HAZ-1 for proper chemical storage.

Regarding permitting, and generator emissions, Section 2.6 Project Approvals, on page 2-16 of the Draft EIR states that a permit to construct and operate is required from the SCAQMD. In response to the comment, text of the Draft EIR Impact 3.3-1 has been revised as follows:

Page 3.3-23:

The new treatment facilities will require diesel-fueled emergency generators. Each generator would be required to obtain an emissions permit from SCAQMD, along with any other combustion equipment that is part of the proposed project. Emergency generators are estimated to run 20-50 hours per year. Emissions from a generator running a worst case 24 hours a day were estimated using URBEMIS 2007 (Table 3.3-7). As shown in Table 3.3-7, operational emissions from the emergency generator would not exceed SCAQMD thresholds.

**TABLE 3.3-7
EMISSIONS FROM PROJECT OPERATION (POUNDS PER DAY)^a**

Project Component	ROG	NO_x	CO	PM10	PM2.5	CO₂
Emergency Generator	6	76	22	2	2	9,040
SCAQMD Thresholds of Significance	75	100	550	150	55	NA ^b
Significant (Yes or No)?	No	No	No	No	No	No

a Project operational emergency generator emissions estimates were made using URBEMIS2007, version 9.2. 4 using a default 549 horsepower generator.

b SCAQMD has an annual project threshold of 10,000 tons of CO₂ equivalent (CO₂e), there is no daily threshold.

Values in **bold** are in excess of the applicable SCAQMD significance threshold. NA = Not Available.

SOURCE: ESA, 2011.

Comment AQMD-2

The comment states the lead agency should estimate localized air quality impacts to determine effects from construction activities on nearby sensitive receptors. The comment suggests AQMD guidance in a localized air quality analysis and proposed mitigation measures if air quality impacts are significant.

Response AQMD-2

The localized air quality thresholds are identified as voluntary on the AQMD web page and were not applied to this project. However, in response to the comment, mitigation measures have been added to ensure further reduction of construction emissions. The text of the Draft EIR Impact 3.3-3 has been revised as follows:

Page 3.3-25:

Mitigation Measures

~~None required.~~ Although not required, to minimize potential effects to sensitive receptors during construction, Mitigation Measures AQ-1 through AQ-4 would implement best management practices to further decrease construction emissions.

Mitigation Measure AQ-1: General contractors shall implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.

Mitigation Measure AQ-2: All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

Mitigation Measure AQ-3: General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off when not in use to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

Mitigation Measure AQ-4: All construction vehicles shall be prohibited from idling in excess of ten minutes, both on- and off-site.

Comment AQMD-3

The comment requests a copy of written responses to all comments prior to the adoption of the Final EIR, in accordance with Public Resources Code Section 21092.5.

Response AQMD-3

The comment is noted. As required by CEQA, the South Coast AQMD will receive a copy of the Final EIR, including all comment letters and written responses to all comments, ten (10) days prior to the certification of the Final EIR.

Letter 8, Peggy Falcon

Comment Falcon-1

The comment states that the EIR should include notification of all existing or proposed aesthetic quality obstructions on the IRWD property. The comment includes photographs of the current scenic view from the commenter's property.

Response Falcon-1

Scenic views are evaluated in Chapter 3.1, Aesthetics. The Draft EIR includes Mitigation Measure AES-1 (page 3.1-10) that requires preparation and implementation of a Landscape Plan that would include specifications for maintenance of perimeter vegetation and replacement of onsite vegetation to mitigate impacts to scenic views of the Baker WTP.

Comment Falcon-2

The comment requests reasoning for site location, specifically the site elevation, whether IRWD owns the land, needed services provided by the land, and the placement of the pipeline. The comment suggests ensuring the IRWD is not leasing the land by checking the trust deed of the site. The comment states that the City of Lake Forest Public Works Department has identified missing pipelines.

Response Falcon-2

The Baker site was chosen because IRWD already owns the land; there is an existing treatment plant onsite; there are existing water distribution pipelines to bring water to/from the site; and all the project objectives can be met using this site. The primary project objective is to provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity for potable water. The property for the Baker WTP is owned by IRWD. The proposed project is not missing pipelines; IRWD is unaware of any comments pertaining to the same from the City of Lake Forest.

Comment Falcon-3

The comment requests checks for plugged oil wells on and near the property. The comment requests the location of the four abandoned dry wells mentioned in the Draft EIR on page 3.7-2 and the kind of wells. Are they located on land owned by IRWD?

Response Falcon-3

The EIR analysis includes a search of the Cortese List as required by CEQA, for existing/known hazardous waste and substances sites (Chapter 3.7). The Cortese List includes records of leaking underground storage tanks (LUSTs), hazardous materials releases, contaminated soils (including petroleum), superfund sites, etc. The Baker WTP property is not on any sites listed in the Cortese List database (page 3.7-10).

The Draft EIR states on page 3.7-2 that there are four abandoned dry wells in the City of Lake Forest. The four wells are located between 0.1 and 0.8 miles southwest of the Baker site and are classified as dry holes, which are defined as exploratory wells that were not completed and never produced oil or gas. The dry wells were plugged in compliance with Public Resources Code Section 3,000 et al. (Personal communication, Bill Winkler, DOGGR, March 25, 2011). There are no wells located within the boundaries of the project sites. The closest well is located on the corner of Palmwood and Wisteria. A map from the State Department of Conservation, Division of Oil, Gas, & Geothermal Research (DOGGR) is provided at the end of this chapter to show the locations of the four dry wells (**Figure 9-1**).

Comment Falcon-4

The comment requests monitoring gigahertz radiation transmission for health purposes, in case of immune system, dehydration, Epstein Barr virus, heart pacers, and more effects on nearby residents. The comment requests disclosure of emission frequencies. The comment requests whether additional space on the tower would be rented or leased for extra revenue.

Response Falcon-4

The equipment on the antennae tower are considered “low-power, non-licensed transmitters” by the Federal Communications Commission (FCC). Low-power, non-licensed transmitters do not require a license from the FCC; however, such transmitters require authorization from the FCC prior to being marketed in the United States to ensure compliance with regulations in Part 15 of Title 47 of the Code of Federal Regulations. Low-power, non-licensed transmitters are used virtually everywhere, particularly in consumer products such as cordless phones, baby monitors, garage door openers, and wireless home security systems. Non-licensed transmitters operate on a variety of frequencies set by the FCC. The equipment on the antennae tower located at the Baker site operates at between 902 to 928 megahertz and 5.725 to 5.850 gigahertz. These operational emission frequencies are available for public use for purposes such as cordless phones. At this time, IRWD has no plan to lease space on the tower to outside parties. The equipment on the tower will continue to operate as part of IRWD’s existing SCADA system regardless of the construction and operation of the proposed Baker Water Treatment Plant facilities.

Comment Falcon-5

The comment requests that faults and fissures on and near the property are checked using the most recent U.S. Geological Survey maps. The comment requests that the seismic activity and map include San Juan Capistrano, and that the EIR states the name of the earthquake fault in the vicinity of Lake Forest.

Response Falcon-5

Seismic hazards are addressed in the EIR in Chapter 3.6. The faults located in the project area, including the area south of Lake Forest, are shown in Figure 3.6-1 in the Draft EIR. A description of the faults and most recent seismic activity along the active faults are described on pages 3.6-3 through 3.6-5 of the Draft EIR.

Comment Falcon-6

The comment requests a sufficient monitoring system to detect ammonia based leaking into water table. The comment states concerns of whether design or instrumentation planning exists for monitoring of leakage into water table.

Response Falcon-6

Project operation would have no affect on groundwater or groundwater quality. There would be no contact between chemicals and the ground surface. All chemicals, including aqua ammonia, would be stored in tanks in an enclosed building with secondary containment in the event of a spill. The secondary containment for each tank would be designed to hold the full tank volume in the event of an emergency to avoid chemical spills (Project Description, page 2-15).

Comment Falcon-7

The comment requests that holding tanks containing water and ammonia based chemicals be built to the correct earthquake specifications. The comment requests that the project states what seismic building standards or codes will be used since no city building permits are required. The comment asks if IRWD will employ their own inspectors.

Response Falcon-7

As discussed on page 3.6-18, the proposed project would be required to comply with CCR Title 24, the California Building Code (CBC), which includes technical specifications and engineering design criteria for grading, foundations, retaining walls, and structures within zones of seismic activity. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California (Draft EIR, page 3.6-12). Incorporation of CBC seismic safety codes into the project design would minimize any impacts to project facilities due to seismic events and ground shaking. During construction, IRWD would retain construction inspectors, whom among other things, would ensure that facilities are built in accordance with seismic safety codes as designated on final design drawings and specifications.

Comment Falcon-8

The comment references a comment about odor made during the scoping meeting (see Comment PM-5). The comment requests another site where odor would be comparable.

Response Falcon-8

See Response PM-5 below. Odors from other sites are not pertinent to this proposed project. The Draft EIR concludes that there would be no impacts associated with odors due to the proposed project (page 3.3-25).

Comment Falcon-9

The comment states concerns for potential significant hazards to the public due to routine truck transport of hazardous waste, and requests the number of route transport times expected in one year.

Response Falcon-9

Impact 3.7-1 in the Executive Summary Table on page ES-18 is discussed further on pages 3.7-11 and 3.7-12 of the Draft EIR. The Impact 3.7-1 pertains to routine transport, use, and disposal of hazardous materials (rather than hazardous waste) during project construction and operation. Hazardous materials would be used during construction of the proposed project for a limited period of time. Once the Baker WTP is operational, the frequency of chemical deliveries to the Baker site is provided in Table 2-1 on page 2-16 of the Project Description.

Letter 9, Dave Alexander

Comment Alexander-1

The comment asks what assurances there are that there will be no noises coming from the plant. The comment asks if there will be sound test conducted before and after the plant is constructed.

Response Alexander-1

The Baker WTP would be built in compliance with the noise standards established by the City of Lake Forest (Chapter 3.10, page 3-10-6). Noise levels at the Baker WTP boundary with residential properties would not exceed noise levels established in the City's noise ordinance for residential properties. The Draft EIR includes a commitment to conduct a noise study once construction is complete to verify the project is in compliance with the noise ordinance (Mitigation Measure NOISE-3, page 3.10-11).

Comment Alexander-2

The comment asks what will happen if chemicals leak from the storage facility; how would the neighborhood be affected. The comment asks what IRWD is doing to protect the neighborhood.

Response Alexander-2

All chemicals, including aqua ammonia, would be stored in tanks in an enclosed building with secondary containment in the event of a spill. The secondary containment for each tank would be designed to hold the full tank volume in the event of an emergency to avoid chemical spills (see Project Description, page 2-15). The surrounding neighborhood would not be affected in the event of an accidental spill.

In addition, as described on page 3.7-11 of the Draft EIR, the California Hazardous Materials Release Response Plans and Inventory Program requires facilities that store hazardous materials

onsite to prepare a Hazardous Materials Business Plan (HMBP) that includes an inventory of hazardous substances and an Emergency Response Plan (ERP). The HMBP is submitted to local health and fire departments. In the event of an accident, the release of hazardous materials must be immediately reported to local fire and emergency personnel and appropriate county and state agencies. IRWD would be required to prepare a HMBP and ERP for the Baker WTP. These Plans would determine the response protocol in the event of an accident in order to protect public health and the environment.

Comment Alexander-3

The comment requests that the upper part of the slope along Wisteria get planted and that a better looking fence be installed, preferably not barbed wire.

Response Alexander-3

The fence along Wisteria would be replaced. The fence design and material are still under development. The project includes a commitment to develop a Landscape Plan that includes specifications for perimeter vegetation to screen the Baker WTP and would also provide some screening of the fence (Mitigation Measure AES-1, page 3.1-10).

Public Meeting Verbal Comments

Comment PM-1

The comment requests the name of the head geologist for the proposed project.

Response PM-1

The Geotechnical Report for the Baker WTP was prepared by GMU Geotechnical, Inc. in Rancho Santa Margarita, California as a subconsultant to RBF Consulting, which is the lead engineering design firm for the proposed project.

Comment PM-2

The comment states that the seismic activity south of Lake Forest, which is in a Seismic Zone 4, is not included on any maps or geologic analysis in the document.

Response PM-2

The faults located in the project area, including the area south of Lake Forest, are shown in Figure 3.6-1 in the Draft EIR. A description of the faults and most recent seismic activity along the active faults are described on pages 3.6-3 through 3.6-5 of the Draft EIR. See Response Falcon-7.

Comment PM-3

The comment requests the locations of the abandoned oil fields located in Orange County

Response PM-3

See Response Falcon-3

Comment PM-4

The comment requests that the term “raw water” be specified to whether or not it includes recycled or sewage water as a source of supply to the treatment plant.

Response PM-4

Raw water is a general term used to describe the source of supply to a treatment facility. If it is a wastewater treatment facility, the term “raw water” could mean sewage. If it is a potable treatment facility, the term “raw water” means untreated natural water (not sewage). For the proposed project, the term “raw water” means untreated natural surface water or groundwater.

Comment PM-5

The comment asks, if the proposed project is not treating sewage water, then why does the EIR state that there may be some odors associated with the proposed project?

Response PM-5

As a requirement under CEQA, the EIR must address odor as it relates to the proposed project. On page 3.3-25, the Draft EIR acknowledges that the project is not associated with typical odorous land uses. The Draft EIR concludes that there would be no impacts associated with odors due to the proposed project (page 3.3-25).

Comment PM-6

The comment asks if a comment letter from the City of Lake Forest Public Works Department was considered in the Draft EIR regarding missing pipelines in the project area.

Response PM-6

IRWD has not received a comment letter from the City of Lake Forest Department of Public Works.

Comment PM-7

The comment asks which seismic building standards will be applied to the design and construction of the proposed project, since the project would not require city building permits and would not have to comply with any permit requirements.

Response PM-7

See Response Falcon-7.



SOURCE: Bing Maps; DOGGR, 2011.

IRWD Baker WTP Final EIR . 208671

Figure 9-1
Dry Wells in the Project Vicinity

CHAPTER 10

Corrections and Additions to the Draft EIR

This chapter contains a compilation of revisions made to the text of the Draft EIR by the Lead Agency, in response to the comments received during the 45-day public review period. All revisions are previously introduced in Chapter 9 of this Final EIR but are summarized here for convenience of the reader.

The revisions appear as indented text. Where the responses indicate additions or deletions to the text of the Draft EIR, additions are indicated in underline and deletions in ~~strikeout~~.

Page 2-16:

As Lead Agency, IRWD may use this EIR to approve the proposed project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts. Responsible Agencies having discretionary approval over components of the project include ETWD, MNWD, SMWD, TCWD, MWDOC, and Metropolitan Water District of Southern California.

Page 2-17:

Metropolitan Water District of Southern California: ~~Approval for AMP connection~~Approve AMP interconnection and pipeline use

Page 3.3-23:

The new treatment facilities will require diesel-fueled emergency generators. Each generator would be required to obtain an emissions permit from SCAQMD, along with any other combustion equipment that is part of the proposed project. Emergency generators are estimated to run 20-50 hours per year. Emissions from a generator running a worst case 24 hours a day were estimated using URBEMIS 2007 (Table 3.3-7). As shown in Table 3.3-7, operational emissions from the emergency generator would not exceed SCAQMD thresholds.

**TABLE 3.3-7
EMISSIONS FROM PROJECT OPERATION (POUNDS PER DAY)^a**

Project Component	ROG	NO_x	CO	PM10	PM2.5	CO₂
Emergency Generator	6	76	22	2	2	9,040
SCAQMD Thresholds of Significance	75	100	550	150	55	NA ^b
Significant (Yes or No)?	No	No	No	No	No	No

a Project operational emergency generator emissions estimates were made using URBEMIS2007, version 9.2. 4 using a default 549 horsepower generator.

b SCAQMD has an annual project threshold of 10,000 tons of CO₂ equivalent (CO₂e), there is no daily threshold.

Values in **bold** are in excess of the applicable SCAQMD significance threshold. NA = Not Available.

SOURCE: ESA, 2011.

Page 3.3-25:

Mitigation Measures

~~None required.~~ Although not required, to minimize potential effects to sensitive receptors during construction, Mitigation Measures AQ-1 through AQ-4 would implement best management practices to further decrease construction emissions.

AQ-1: General contractors shall implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.

AQ-2: All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

AQ-3: General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off when not in use to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

AQ-4: All construction vehicles shall be prohibited from idling in excess of ten minutes, both on- and off-site.

Page 3.10-9:

The nearest sensitive receptor to construction activities at the Raw Water Pump Station would be residences approximately 1,190 feet ~~south~~north. Table 3.10-1 shows that the greatest noise levels are associated with excavation and finishing and would be 89 dBA at a distance of 50 feet. Accordingly, attenuated at 1,190 feet, these residences would experience noise levels of up to 61 dBA Leq during finishing and excavation, the loudest of construction activities that would occur.

Page 3.10-10:

The Raw Water Pump Station is being constructed at the existing Intertie facility. The pumps at the proposed facility would be enclosed, and would be inaudible to the nearest sensitive receptor located approximately 1,190 feet to the ~~south~~north. Nonetheless, the proposed pump station would be designed for noise attenuation such that the sound levels would be in compliance with the City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards) at the property line. Implementation of Mitigation Measure NOISE-3 would ensure that project operation does not exceed noise standards by requiring post-construction noise monitoring to confirm compliance with standards at the property boundary. Impacts would be considered less than significant.

Page 3.10-11:

NOISE-3: IRWD shall conduct a post-construction noise survey to ensure that operation of new equipment at the Baker WTP and Raw Water Pump Station is in compliance with the City of Lake Forest Noise Ordinance (11.16.040 Exterior Noise Standards) and City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards) at the property boundary.

Appendix A

Scoping Report





626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300 phone
213.599.4301 fax

www.esassoc.com

Scoping Report

date June 9, 2010
to Christian Kessler
from Jennifer Jacobus
subject IRWD Baker Water Treatment Plant Project Scoping Report

IRVINE RANCH WATER DISTRICT BAKER WATER TREATMENT PLANT PROJECT

Scoping Report

Introduction

Irvine Ranch Water District (IRWD) is the Lead Agency for the proposed Baker Water Treatment Plant (WTP) Project (proposed project). The proposed project would be located at the site of the existing Baker Filtration Plant on Wisteria in Lake Forest. The Baker WTP would provide treated water to IRWD customers and to the following retail water agencies in southern Orange County: El Toro Water District, Moulton Niguel Water District, Santa Margarita Water District, and Trabuco Canyon Water District. The proposed project will improve water supply reliability by increasing local treatment capability for multiple supply sources, including imported water and local surface water from Irvine Lake. The proposed project would create redundancy of treatment system capacity and distribution infrastructure for potable water (non-irrigation use) in the event of the facility outages at the Diemer Filtration Plant, Lower Feeder Pipeline or Allen-McColloch Pipeline (AMP) due to routine maintenance or unforeseen emergencies.

Notice of Preparation and Notice of Availability

The Notice of Preparation (NOP) was prepared by Environmental Science Associates (ESA) pursuant to the California Environmental Quality Act (CEQA), to notify interested parties that IRWD will be preparing an Environmental Impact Report (EIR) to evaluate potential environmental impacts of the Baker WTP Project (see Attachment 1).

The NOP was mailed on May 19, 2010 to interested parties, including local, state, and federal agencies; news publications; and other groups or individuals who had previously expressed interest in the project. A Notice of

Completion (NOC) was also prepared by IRWD and sent to the State Clearinghouse (see Attachment 2). Copies of the NOP were made available for public review at local libraries (Orange County El Toro Branch Library and Orange Public Library) and at the IRWD website: <http://www.irwd.com>.

Scoping Period

The 30-day project scoping period, which began with the distribution of the NOP on May 19, 2010, remained open through June 17, 2010. During the scoping period, IRWD held a scoping meeting on May 26, 2010, 6:30 p.m. at IRWD's main building (15600 Sand Canyon Avenue, Irvine, CA 92618). IRWD placed public notices of the scoping meeting in the Orange County Register-Recorder newspaper on May 24, 2010.

At the scoping meeting, IRWD staff and ESA consultants gave a presentation on the IRWD's proposed action (see Attachment 3). Following these presentations, meeting participants were invited to talk to staff regarding any issues they have. Participant questions and comments were recorded on a whiteboard and videotape, and comment cards were also available for participants to fill out at the meeting or to send in at a later date. The sign-in sheet from the public scoping meeting can be found in Attachment 4.

Comments

During the scoping period, IRWD received nine comment letters on the proposed project via mail, e-mail or facsimile (see Attachment 5). IRWD also received verbal comments during the scoping meeting; multiple comments were recorded (see Attachment 6).

The next formal opportunity for public comments will be associated with the release of the Draft Environmental Impact Report, expected to be available for public review in Fall 2010.

Contents of this Report

This Scoping Report contains documents pertinent to the scoping process. The following items are included:

- Attachment 1: Notice of Preparation
- Attachment 2: Notice of Completion
- Attachment 3: Scoping Meeting Presentation
- Attachment 4: Scoping Meeting Sign-in Sheet
- Attachment 5: Comment Letters Received by IRWD
- Attachment 6: Scoping Meeting Comments



Notice of Preparation

Date: May 19, 2010

To: Responsible and Trustee Agencies and Interested Parties

Subject: Notice of Preparation of an Environmental Impact Report for the Irvine Ranch Water District Baker Water Treatment Plant Project

This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that the Irvine Ranch Water District (IRWD) as the Lead Agency is beginning preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Baker Water Treatment Plant (WTP) Project (proposed project). The proposed project would be located at the site of the existing Baker Filtration Plant on Wisteria in Lake Forest. The Baker WTP would provide treated water to IRWD customers and to the following retail water agencies in southern Orange County: El Toro Water District, Moulton Niguel Water District, Santa Margarita Water District, and Trabuco Canyon Water District. These participating agencies, along with the Municipal Water District of Orange County, are considered Responsible Agencies pursuant to CEQA.

The purpose of the proposed project is to improve water supply reliability in southern Orange County by increasing local treatment capability for multiple supply sources, including imported water and local surface water from Irvine Lake. The proposed project would create redundancy of treatment system capacity and distribution infrastructure for potable water (non-irrigation use) in the event of facility outages at the Diemer Filtration Plant, Lower Feeder Pipeline or Allen-McColloch Pipeline (AMP) due to routine maintenance or unforeseen emergencies.

IRWD is soliciting the views of interested persons and agencies as to the scope and content of the environmental information to be evaluated in the EIR. In accordance with CEQA, agencies are requested to review the project description provided in this NOP and provide comments on environmental issues related to the statutory responsibilities of the agency. The EIR will be used by IRWD when considering approval of the Baker WTP Project.

In accordance with the time limits mandated by CEQA, comments on the NOP must be received by IRWD no later than 30 days after publication of this notice. We request that comments be received no later than **June 17, 2010**. Please send your comments to the contact person shown below. Please include a return address and contact name with your comments.

A public scoping meeting will be held to receive public comments and suggestions on the project. The scoping meeting will be open to the public on:

DATE: Wednesday, May 26, 2010
TIME: 6:30 p.m. doors open / 7:00 p.m. presentation begins
LOCATION: Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

Contact: Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92618-3102

Telephone: (949) 453-5632
Email: weghorst@irwd.com



Introduction

Irvine Ranch Water District (IRWD), as the Lead Agency pursuant to the California Environmental Quality Act (CEQA), is proposing to construct the Baker Water Treatment Plant (WTP) onsite at the existing Baker Filtration Plant in the City of Lake Forest. The proposed project would provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity and distribution infrastructure for potable water. The proposed Baker WTP would have a normal operating capacity of about 43.5 cubic feet per second (cfs), or 28 million gallons per day (mgd), of raw water. The Baker WTP would provide treated water to IRWD customers and to the following retail water agencies in southern Orange County: El Toro Water District (ETWD), Moulton Niguel Water District (MNWD), Santa Margarita Water District (SMWD), and Trabuco Canyon Water District (TCWD). These participating agencies, along with the Municipal Water District of Orange County (MWDOC), are considered Responsible Agencies pursuant to CEQA. In addition to the Baker WTP facilities, the proposed project also would include a new offsite pump station near Peters Canyon Reservoir; new non-reclaimable waste (NRW) pipelines to convey NRW from the Baker WTP to IRWD's sanitary sewer; and may include new pipelines to convey treated water from the Baker WTP to the South County Pump Station and Pipeline.

Project Background

IRWD was established in 1961 as a California Water District pursuant to the California Water District Law (California Water Code, Division 13). IRWD provides potable and recycled water, sewage collection and treatment, and urban runoff treatment to municipal and industrial (M&I), and agricultural customers within an 114,560-acre service area in Orange County, California. Currently, 60 percent of the water IRWD provides for its customers comes from local sources, including groundwater (produced from the groundwater basin managed by Orange County Water District), surface water, and reclaimed water. The remaining 40 percent of IRWD's water supply is imported by the Metropolitan Water District of Southern California (Metropolitan or MWD) and purchased by IRWD through the MWDOC. MWD imports water through both the State Water Project (SWP) and the Colorado River aqueduct systems.

In 2001, IRWD completed a consolidation with Los Alisos Water District (LAWD), which served portions of the City of Lake Forest. The existing Baker Filtration Plant (BFP), located on Wisteria in Lake Forest, was one of the facilities owned and operated by LAWD that is now owned by IRWD. Currently, the BFP is operational, providing filtered well water as a supplement to the Zone A recycled water system. The operation of existing facilities at the BFP would be discontinued after implementation of the proposed project.

For a number of years, water agencies in south Orange County have investigated alternatives for improving both water supply and water system reliability. South Orange County receives the majority of its potable water from MWDOC via MWD's Diemer Filtration Plant and the

Allen-McColloch Pipeline (AMP). In December 1999, the AMP ruptured causing significant reductions in MWD supplies to southern Orange County, demonstrating the dependence of this region on AMP operation. In 2006, a study was undertaken by the Santiago Aqueduct Commission (SAC) to determine the feasibility of constructing a new water treatment plant along the SAC-owned Baker Pipeline. The SAC is comprised of IRWD and the Responsible Agencies. The product water from such a facility would provide an additional supply of treated water to southern Orange County, creating redundant treatment and distribution capacity to the Diemer Filtration Plant and AMP. The study identified the BFP site as the location for such a facility.

Project Objectives

The proposed Baker WTP is a regional project that is intended to:

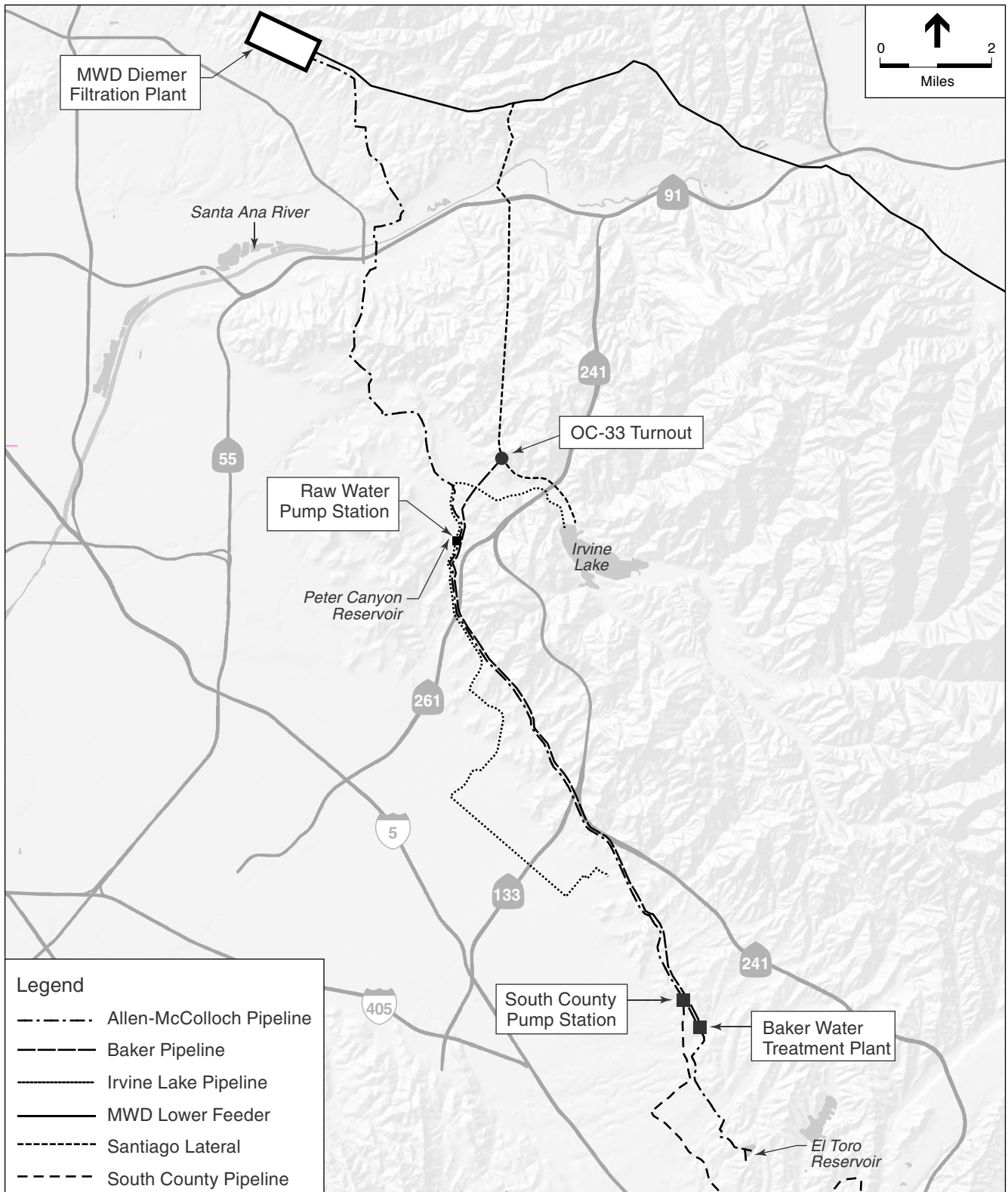
- Improve water reliability to areas of south Orange County by constructing local treatment capability for a variable supply source (imported water from MWD and local Irvine Lake water).
- Provide a reliable, local potable water supply in the event of emergency conditions or scheduled maintenance of MWD's delivery system (e.g., AMP, Lower Feeder, Diemer Filtration Plant).
- Increase operational flexibility by creating redundancy within the water conveyance system.

Project Description

Raw Water Supply and Conveyance

The raw water sources for the proposed project include imported water supplied by MWD or local surface water from Irvine Lake. Both raw water sources would be conveyed using existing pipeline facilities, including the MWD Lower Feeder, MWD Santiago Lateral, SAC Baker Pipeline, and SAC Irvine Lake Pipeline. Imported raw water would enter the Santiago Lateral from the Lower Feeder upstream of the Diemer Filtration Plant. Then, raw water would enter the Baker Pipeline from the Santiago Lateral at the OC-33 turnout (**Figure 1**).

Raw water from Irvine Lake would be used for up to three months per year and in the event of an outage of the Lower Feeder, Santiago Lateral, Diemer Filtration Plant, or AMP. Irvine Lake is fed by Santiago Creek and water imported through the Santiago Lateral. The lake captures approximately 7,000 acre-feet of local runoff per year (RBF/Carollo, 2010). IRWD is a partial owner of the lake together with Serrano Water District. IRWD currently supplies untreated water from Irvine Lake to irrigation customers. To deliver water from Irvine Lake to the Baker Pipeline, a new pump station would be constructed at the existing Baker/Irvine Lake Pipeline Flow Control Facility near Peters Canyon Reservoir (**Figure 1**). The pump station would transfer water from the Irvine Lake Pipeline to the Baker Pipeline. The pump station would be aboveground and would be designed with a similar aesthetic and architecture as the existing neighboring buildings onsite.



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker WTP NOP . 208671

Figure 1
Existing and Proposed
Project Facilities

Baker WTP

Raw water would be treated at the proposed Baker WTP, which would be located at the site of the existing BFP. The Baker WTP would have a normal operating capacity of about 43.5 cfs (28 mgd) of raw water. The treatment plant would utilize membrane filtration, ultraviolet (UV) disinfection, and chlorination for treatment (RBF/Carollo, 2010). The proposed layout for the WTP facilities is shown in **Figure 2**.

The proposed project would require demolition of all existing aboveground facilities at the BFP, except for the office and storage buildings, the two steel-tank recycled water reservoirs and the radio tower. The following new facilities would be constructed at the proposed Baker WTP as shown in **Figure 2**: forebay, feed water pump station, backwash wastewater treatment facilities, chemical storage building, treatment building to house membrane filters and UV disinfection facilities, chlorine contact basin, flow control facility, TCWD pump station, product water pump station, surge tank, emergency generators, and electrical equipment. The aboveground Baker WTP facilities would be designed to be compatible with existing and planned neighboring residential development. Raw water would be delivered to the Baker WTP via the existing Baker Pipeline. Approximately 1,000 feet of new 42-inch feed water pipeline would be required onsite at the proposed WTP to convey raw water from the Baker Pipeline, which bisects the existing BFP, to the proposed treatment facilities.

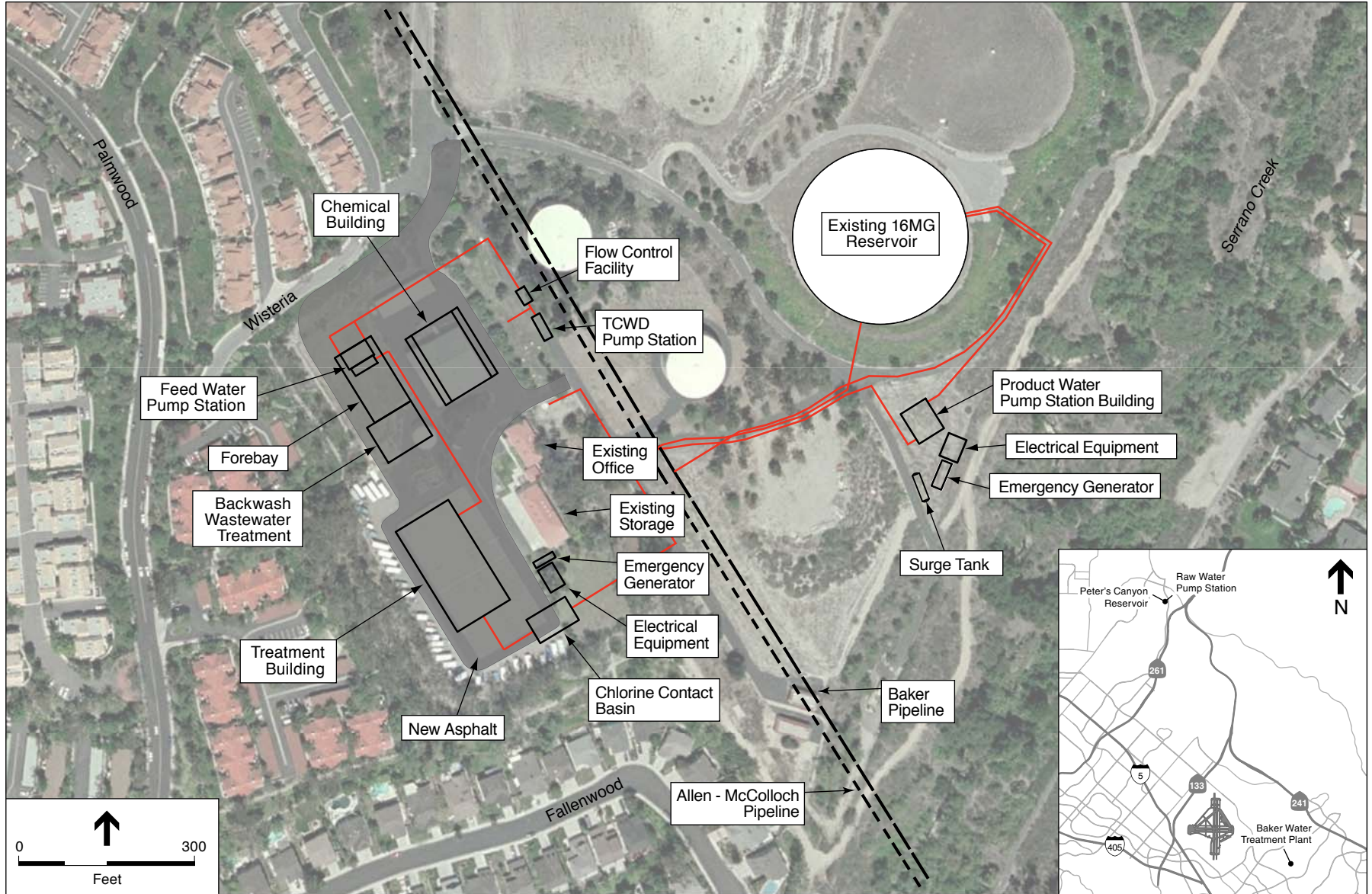
Approximately 0.4 million gallons (MG) per day of non-reclaimable wastewater (NRW) would be generated at the proposed Baker WTP and conveyed to the IRWD sanitary sewer through new sewer pipelines. NRW would be conveyed to IRWD's Michelson Water Reclamation Plant for treatment. The proposed sewer pipeline alignment is shown in **Figure 3**.

Treated Water Conveyance

Treated water from the Baker WTP would flow by gravity to IRWD customers through its existing distribution system. Treated water would be conveyed to ETWD, MNWD, SMWD, and TCWD through a new pipeline connection to either the AMP or South County Pipeline (SCP). The preferred method of delivering water to the partner agencies would be through an existing connection to the AMP on the Baker WTP property. IRWD is currently coordinating with MWD for use of the AMP. If the AMP alternative is unable to be implemented, then IRWD would construct a new pipeline connecting the Baker WTP to the SCP. IRWD is considering two pipeline alignments to connect to the SCP, shown as Option 1 and Option 2 in **Figure 3**.

Discussion of Impacts

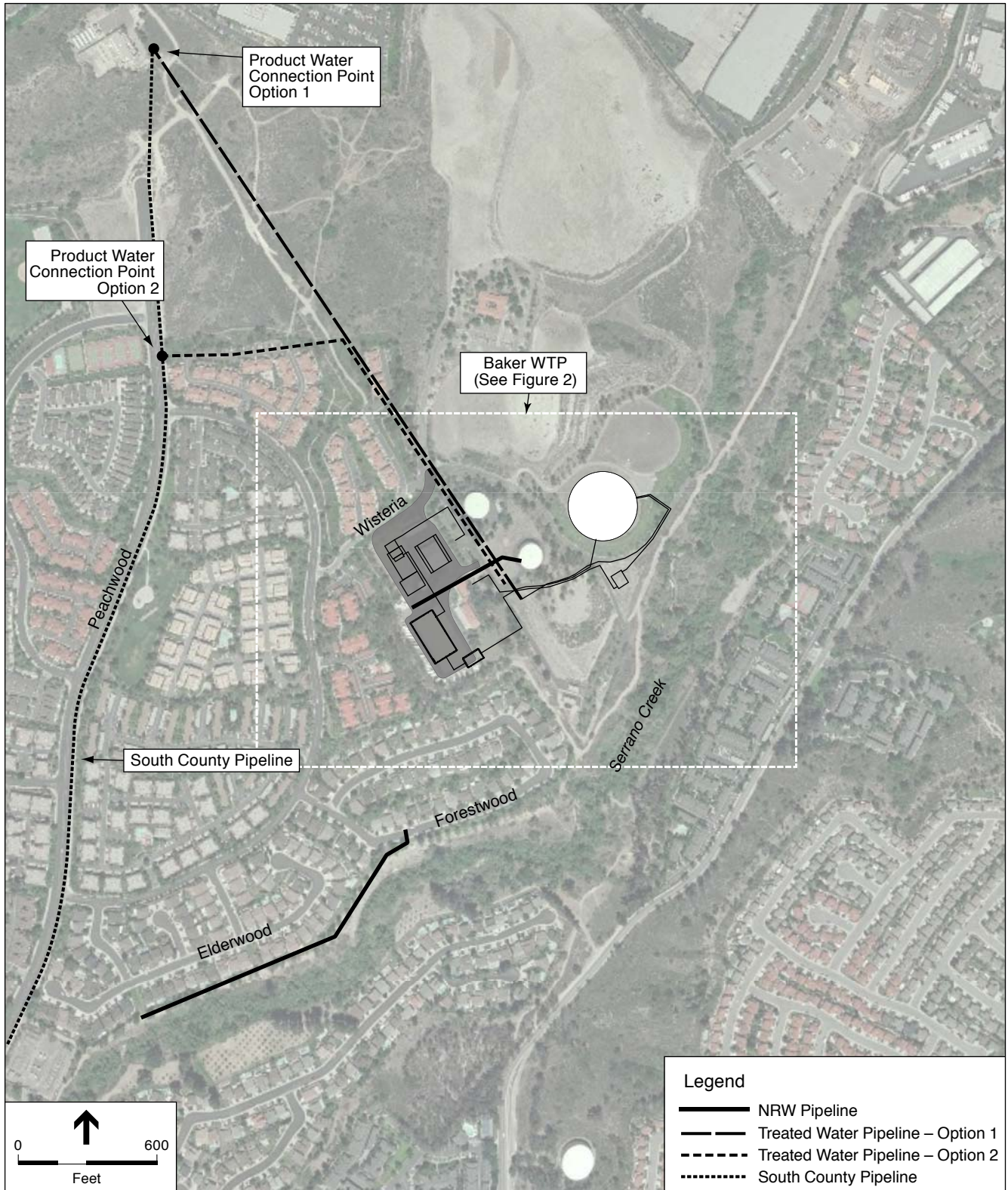
The EIR will assess the physical changes to the environment that would likely result from construction and operation of the proposed project, including direct, indirect and cumulative impacts. Potential impacts of the proposed project are summarized below. The EIR will identify mitigation measures if necessary to minimize potentially significant impacts of the proposed project.



SOURCE: RBF Consulting; Carollo; ESA, 2010

IRWD Baker WTP NOP . 208671

Figure 2
 Proposed Baker
 Water Treatment Plant



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker WTP NOP . 208671

Figure 3
Proposed Pipelines

Aesthetics

The existing aesthetic quality of the project area is dominated by residential land uses, public facilities, and open space. The EIR will evaluate the proposed project for impacts related to aesthetic resources, including scenic vistas and views.

Air Quality and Greenhouse Gas Emissions

Construction of the proposed project would generate emissions from construction equipment exhaust, earth movement, construction workers' commute, and material hauling. Project operation would generate emissions associated with electricity used to power the new Baker WTP. The EIR will evaluate the effects of construction and operational activities on air quality and greenhouse gas emissions and will develop mitigation measures if necessary to reduce the level of impact.

Biological Resources

The proposed project would be constructed primarily within the boundaries of previously developed or disturbed sites. Some pipeline alternatives, if selected, could result in construction in open space areas. The EIR will evaluate the potential for the proposed project to impact biological resources, such as sensitive species and critical habitats, and will evaluate the project's consistency with the Orange County Natural Community Conservation Plan/ Habitat Conservation Plan (NCCP/HCP), local ordinances, and state and federal regulations governing biological resources.

Cultural Resources

Although the project sites are located primarily in previously disturbed area, excavation below the top soil could uncover previously unknown archaeological or paleontological resources. Historic resources also may exist in the area. The EIR will assess the potential effects of the proposed project on cultural resources. Mitigation measures will be developed if necessary to reduce the level of impact where possible.

Geology, Soils and Seismicity

The proposed project is located in a seismically active region. The construction of project components could be subject to potential seismic hazards including ground shaking. In addition, construction activities could expose soils to storm water erosion. The EIR will evaluate geologic hazards in the region and will develop mitigation measures if necessary to reduce potential effects from the proposed project.

Hazards and Hazardous Materials

Excavation activities could uncover contaminated soils or hazardous substances that pose a substantial hazard to human health or the environment. The EIR will assess the potential for encountering such hazards at the project sites and will develop mitigation measures if necessary to ensure that any hazards encountered during construction would be handled in accordance with applicable regulations. Operation of the proposed Baker WTP would require transport, use, and

disposal of regulated materials typically used in potable water treatment systems. The EIR will assess the potential for the public or the environment to be affected by accidental release of hazardous materials due to project operation and will develop mitigation measures if necessary to minimize potential effects.

Hydrology and Water Quality

The proposed project could change the drainage patterns at the project sites, which could affect the volume and quality of surface runoff that in turn could affect local surface water resources. Excavation and construction activities could affect storm water quality if sediment or spills run off the project construction site. The EIR will identify storm water quality protection measures required during construction activities such as sediment fencing and spill prevention and containment. The proposed project is not expected to affect groundwater recharge or the water table.

Land Use and Recreation

The project sites are located in residential areas of Orange County in the City of Lake Forest and in an open space area in the City of Orange. The EIR will evaluate the compatibility of the proposed project with existing and planned land uses as identified on the General Plan Land Use Maps for both cities.

Noise

Construction of the proposed project would generate noise that could affect nearby residences and other sensitive receptors in the vicinity of the project components. The EIR will evaluate the proximity of sensitive receptors to the project components and recommend mitigation measures if necessary to ensure that the proposed project complies with local policies and ordinances to minimize noise impacts.

Population and Housing / Growth Inducement

Implementation of the proposed project would enhance reliability of the water supply for residents within IRWD's service area and the service area for the partner agencies (ETWD, MNWD, SMWD, and TCWD). The proposed project would not build new housing or otherwise have a direct impact on population growth in the project area. The EIR will evaluate the potential for the proposed project to indirectly induce growth and result in secondary environmental effects associated with growth.

Traffic and Transportation

Construction of the proposed project would temporarily add additional truck trips to the local transportation corridors for purposes of materials delivery and construction worker commutes. Operation of the proposed project would require regular deliveries of regulated materials for use in the water treatment process at the proposed Baker WTP. The EIR will evaluate the impact of the proposed project on traffic and circulation at the project site. The EIR will develop mitigation measures if necessary to minimize any potential effects.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # []

Project Title: Baker Water Treatment Plant Project

Lead Agency: Irvine Ranch Water District Contact Person: Paul Weghorst
Mailing Address: 15600 Sand Canyon Ave Phone: (949) 453-5300
City: Irvine Zip: 92618 County: Orange County

Project Location: County: Orange City/Nearest Community: Lake Forest and Orange
Cross Streets: Wisteria and Palmwood, Lake Forest Zip Code: 92630

Lat. / Long.: 33° 39' 22.3" N/ 117° 41' 01.8" W Total Acres:
Assessor's Parcel No.: Land Grant: Canada de Los Alisos Land Grant
Within 2 Miles: State Hwy #: 241 Waterways: Serrano Creek, Peters Canyon Reservoir
Airports: El Toro MCAS (decommissioned) Railways: Burlington Northern Santa Fe/Metrolink Schools: Lake Forest Montessori, Fullbright Montessori, and Rancho Canada Elementary

Document Type:

CEQA: [X] NOP [] Draft EIR NEPA: [] NOI Other: [] Joint Document
[] Early Cons [] Supplement/Subsequent EIR [] EA [] Final Document
[] Neg Dec (Prior SCH No.) [] Draft EIS [] Other
[] Mit Neg Dec Other

Local Action Type:

[] General Plan Update [] Specific Plan [] Rezone [] Annexation
[] General Plan Amendment [] Master Plan [] Prezone [] Redevelopment
[] General Plan Element [] Planned Unit Development [] Use Permit [] Coastal Permit
[] Community Plan [X] Site Plan [] Land Division (Subdivision, etc.) [] Other

Development Type:

[] Residential: Units Acres [X] Water Facilities: Type Treatment Plant MGD 28
[] Office: Sq.ft. Acres Employees [] Transportation: Type
[] Commercial: Sq.ft. Acres Employees [] Mining: Mineral
[] Industrial: Sq.ft. Acres Employees [] Power: Type MW
[] Educational [] Waste Treatment: Type MGD
[] Recreational [] Hazardous Waste: Type
[] Other:

Project Issues Discussed in Document:

[X] Aesthetic/Visual [] Fiscal [X] Recreation/Parks [X] Vegetation
[X] Agricultural Land [X] Flood Plain/Flooding [X] Schools/Universities [X] Water Quality
[X] Air Quality [X] Forest Land/Fire Hazard [] Septic Systems [X] Water Supply/Groundwater
[X] Archeological/Historical [X] Geologic/Seismic [X] Sewer Capacity [X] Wetland/Riparian
[X] Biological Resources [X] Minerals [X] Soil Erosion/Compaction/Grading [X] Wildlife
[] Coastal Zone [X] Noise [X] Solid Waste [X] Growth Inducing
[X] Drainage/Absorption [] Population/Housing Balance [X] Toxic/Hazardous [X] Land Use
[] Economic/Jobs [X] Public Services/Facilities [X] Traffic/Circulation [X] Cumulative Effects
[] Other

Present Land Use/Zoning/General Plan Designation:

Public Facilities; Residential; Open Space Park

Project Description: (please use a separate page if necessary)

The proposed project would construct the Baker Water Treatment Plant (WTP) onsite at the existing Baker Filtration Plant in the City of Lake Forest. The proposed project also would include a new offsite pump station near Peters Canyon Reservoir; a new non-reclaimable waste (NRW) pipeline to convey NRW from the Baker WTP to IRWD's sanitary sewer; and may include new pipelines to convey treated water from the Baker WTP to the South County Pump Station and Pipeline. The proposed project

would provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity, redundancy of distribution infrastructure for potable water, and local treatment capability for variable raw water supply sources.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X".
If you have already sent your document to the agency please denote that with an "S".

- | | |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Air Resources Board | <input type="checkbox"/> Office of Emergency Services |
| <input type="checkbox"/> Boating & Waterways, Department of | <input checked="" type="checkbox"/> Office of Historic Preservation |
| <input type="checkbox"/> California Highway Patrol | <input type="checkbox"/> Office of Public School Construction |
| <input type="checkbox"/> CalFire | <input type="checkbox"/> Parks & Recreation |
| <input checked="" type="checkbox"/> Caltrans District # 12 | <input type="checkbox"/> Pesticide Regulation, Department of |
| <input type="checkbox"/> Caltrans Division of Aeronautics | <input type="checkbox"/> Public Utilities Commission |
| <input type="checkbox"/> Caltrans Planning (Headquarters) | <input checked="" type="checkbox"/> Regional WQCB # 8 |
| <input type="checkbox"/> Central Valley Flood Protection Board | <input type="checkbox"/> Resources Agency |
| <input type="checkbox"/> Coachella Valley Mountains Conservancy | <input type="checkbox"/> S.F. Bay Conservation & Development Commission |
| <input type="checkbox"/> Coastal Commission | <input type="checkbox"/> San Gabriel & Lower L.A. Rivers and Mtns Conservancy |
| <input type="checkbox"/> Colorado River Board | <input type="checkbox"/> San Joaquin River Conservancy |
| <input type="checkbox"/> Conservation, Department of | <input type="checkbox"/> Santa Monica Mountains Conservancy |
| <input type="checkbox"/> Corrections, Department of | <input type="checkbox"/> State Lands Commission |
| <input type="checkbox"/> Delta Protection Commission | <input type="checkbox"/> SWRCB: Clean Water Grants |
| <input type="checkbox"/> Education, Department of | <input checked="" type="checkbox"/> SWRCB: Water Quality |
| <input type="checkbox"/> Energy Commission | <input type="checkbox"/> SWRCB: Water Rights |
| <input checked="" type="checkbox"/> Fish & Game Region # 5 | <input type="checkbox"/> Tahoe Regional Planning Agency |
| <input type="checkbox"/> Food & Agriculture, Department of | <input checked="" type="checkbox"/> Toxic Substances Control, Department of |
| <input type="checkbox"/> General Services, Department of | <input checked="" type="checkbox"/> Water Resources, Department of |
| <input checked="" type="checkbox"/> Health Services, Department of | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Housing & Community Development | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Integrated Waste Management Board | |
| <input checked="" type="checkbox"/> Native American Heritage Commission | |

Local Public Review Period (to be filled in by lead agency)

Starting Date: May 19, 2010 Ending Date: June 17, 2010

Lead Agency (Complete if applicable):

Consulting Firm: <u>ESA</u>	Applicant: _____
Address: <u>707 Wilshire Blvd, Suite 1450</u>	Address: _____
City/State/Zip: <u>Los Angeles, CA 90017</u>	City/State/Zip: _____
Contact: <u>Jennifer Jacobus</u>	Phone: _____
Phone: <u>(213) 599-4300</u>	

Signature of Lead Agency Representative: _____ Date: _____


Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

ESA

Baker Water Treatment Plant Project
Scoping Meeting

Irvine Ranch Water District

May 26, 2010
7:00 pm



ESA

Agenda

- California Environmental Quality Act (CEQA) Overview and Process
- Irvine Ranch Water District (IRWD) Overview
- Project Objectives
- Project Description
- Issues Analyzed in the EIR
- CEQA Schedule for Project
- Comments

ESA

California Environmental Quality Act (CEQA)

- Identifies potential impacts to the environment
- Informs the public and decision makers about potential environmental impacts
- Identifies ways to avoid or reduce potential impacts

ESA

CEQA Process for an EIR

- Notice of Preparation
 - 30-day public review and comment period (ends June 17th)
 - Public scoping meeting (May 26, 2010, 7:00 pm)
- Draft Environmental Impact Report (EIR)
 - Notice of Availability of EIR
 - 45-day public review and comment period
 - Public meeting
- Response to Comments/Final EIR
- Certify EIR

ESA

Irvine Ranch Water District (IRWD)

- Irvine Ranch Water District (IRWD)
 - provides potable and recycled water, sewage collection and treatment, and urban runoff treatment to municipal, industrial, and agricultural customers
- Service Area:
 - 115,531-acre service area in Orange County, California, including Irvine and portions of Lake Forest
- Water Supply:
 - 60% groundwater, local surface water and recycled water
 - 40% imported water (Metropolitan Water District of Southern California or "Metropolitan")

ESA

Project Objectives

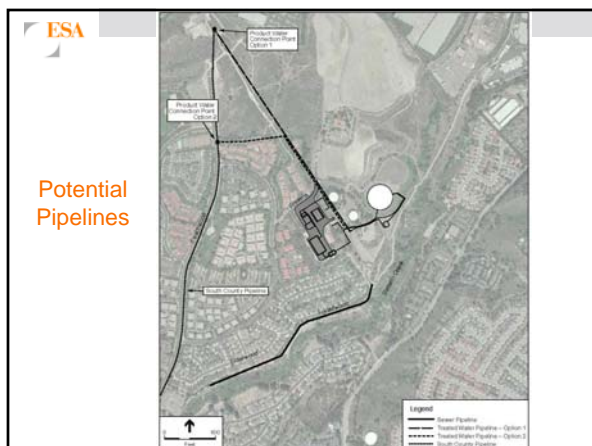
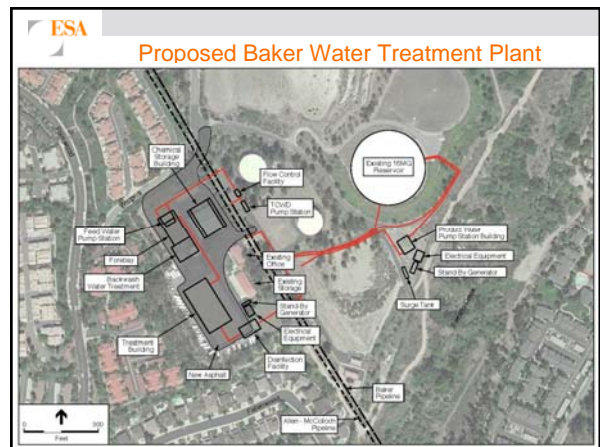
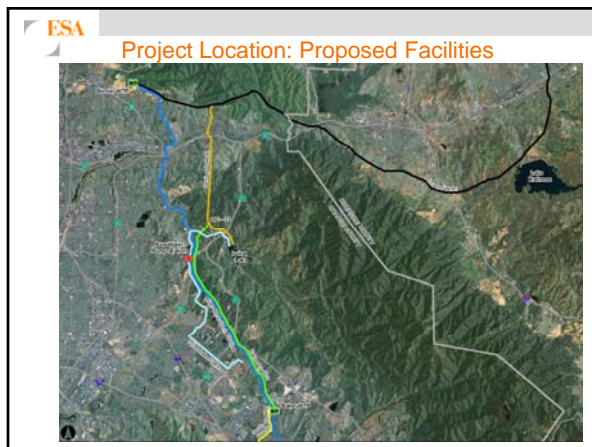
- Provide redundancy in local water treatment and conveyance capacity in order to:
 - Improve water supply reliability in So. Orange County
 - Increase operational flexibility
- Provide treatment for multiple water sources
 - Imported Water from Metropolitan
 - Surface water from Irvine Lake
 - Groundwater (future)



ESA

Project Description

- Baker Water Treatment Plant
 - Upgrades at existing Baker Filtration Plant
 - Operating capacity of 28 million gallons per day
 - Treatment = membrane filtration, ultraviolet (UV) disinfection, and chloramination for disinfection
 - Non-reclaimable waste sewer pipelines
- Untreated Water Pump Station
 - Existing Flow Control Facility at Peters Canyon Reservoir
 - Transfer water from Irvine Lake Pipeline to the Baker Pipeline
- Treated Water Conveyance Pipelines



ESA

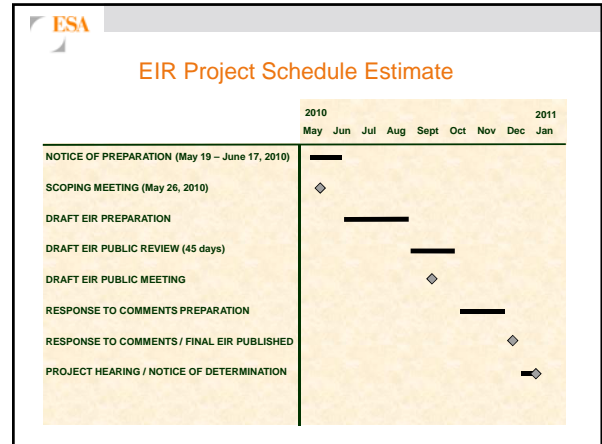
Issues to be Analyzed in the EIR

- Aesthetics
- Agriculture & Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils and Seismicity
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology & Water Quality
- Land Use
- Noise
- Recreation
- Traffic and Transportation

ESA

Other CEQA Requirements

- Alternative Analysis
- Cumulative Impact Analysis
- Growth Inducement Analysis



ESA

NOP Comment Period

- Comment period ends June 17, 2010
- NOP Availability:
 - <http://www.irwd.com> > Engineering > CEQA Filings
 - El Toro Branch Library, 24672 Raymond Way, Lake Forest
 - Orange Public Library, 407 E. Chapman Avenue, Orange
- Submit comments
 - Tonight: Verbal or Written Comments
 - Or mail comments to:

Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92618-3102

SIGN-IN SHEET

Irvine Ranch Water District – Baker Water Treatment Plant Project

NOP Scoping Meeting

MAY 26, 2010

7:00 P.M.

The signing, registering, or completion of this document is voluntary. All persons may attend this meeting regardless of whether they sign, register, or complete this document.

NAME	COMPANY/ AFFILIATION	ADDRESS	EMAIL	Mark an "x" if you do not want future notices sent to you regarding the project
Peggy Falcon		21315 McIntosh LAKE FOREST 92630	_____	
Karen Philip		21047 Maria Lake Forest, CA 92630		
Brenda & John Brashears	Self	21292 Valewood Lake Forest, CA 92630		
Kelly Chiene	RPF	14725 Alton Pkwy, Irvine		
Dave Alexander	Resident	21091 Jenner Lake Forest CA 92630		

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364
 SACRAMENTO, CA 95814
 (916) 653-6251
 Fax (916) 657-5390
 Web Site www.nahc.ca.gov
 e-mail: ds_nahc@pacbell.net



May 28 2010

ENGINEERING & PLANNING

JUN 01 2010

IRVINE RANCH
WATER DISTRICT

Mr. Paul Weghorst, Principal Water Resources Manager
Irvine Ranch Water District
 15600 Sand Canyon Avenue
 Irvine, CA 92618

Re: SCH#2010051055; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Baker Water Treatment Plant Project; Orange County, California

Dear Mr. Weghorst:

The Native American Heritage Commission (NAHC) is the state 'trustee agency' pursuant to Public Resources Code §21070 for the protection and preservation of California's Native American Cultural Resources.. (Also see *Environmental Protection Information Center v. Johnson* (1985) 170 Cal App. 3rd 604). The California Environmental Quality Act (CEQA - CA Public Resources Code §21000-21177, amended in 2009) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following.

The Native American Heritage Commission did perform a Sacred Lands File (SLF) search in the NAHC SLF Inventory, established by the Legislature pursuant to Public Resources Code §5097.94(a) and **Native American Cultural resources were not identified** within the APE identified for the project. Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the nearest tribes and interested Native American individuals that the NAHC recommends as 'consulting parties,' for this purpose, that may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We recommend that you contact persons on the attached list of Native American contacts. A Native American Tribe or Tribal Elder may be the only source of information about a cultural resource.. Also, the NAHC recommends that a Native American Monitor or Native American culturally knowledgeable person be employed whenever a professional archaeologist is employed during the 'Initial Study' and in other phases of the environmental planning processes.. Furthermore we suggest that you contact the California Historic Resources Information System (CHRIS) at the Office of Historic Preservation (OHP) Coordinator's office (at (916) 653-7278, for referral to the nearest OHP Information Center of which there are 11.

Consultation with tribes and interested Native American tribes and interested Native American individuals, as consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f] *et seq.*), 36 CFR Part 800.3, the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes*.

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

The authority for the SLF record search of the NAHC Sacred Lands Inventory, established by the California Legislature, is California Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10). The results of the SLF search are confidential. However, Native Americans on the attached contact list are not prohibited from and may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of 'historic properties of religious and cultural significance' may also be protected under Section 304 of the NHPA or at the Secretary of the Interior's discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C. 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens. Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties,' on the list provided by the NAHC in order that cultural resources will be protected. However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does mandate tribal consultation for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC

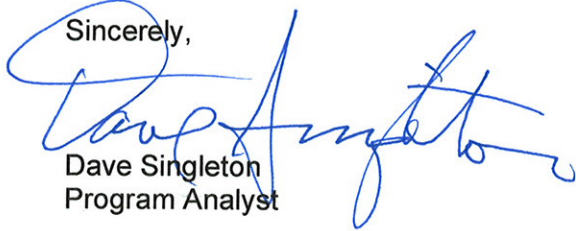
Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or

medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony.

Again, Lead agencies should consider avoidance, as defined in §15370 of the California Code of Regulations (CEQA Guidelines), when significant cultural resources are discovered during the course of project planning and implementation

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dave Singleton". The signature is fluid and cursive, with a large initial "D" and "S".

Dave Singleton
Program Analyst

Attachment: List of Native American Contacts

Cc: State Clearinghouse

Native American Contacts
May 28, 2010
Orange County

Ti'At Society
Cindi Alvitre
6515 E. Seaside Walk, #C Gabrielino
Long Beach , CA 90803
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrielino Tongva Nation
Sam Dunlap, Chairperson
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net

(909) 262-9351 - cell

Juaneno Band of Mission Indians Acjachemen Nation
David Belardes, Chairperson
32161 Avenida Los Amigos Juaneno
San Juan Capistrano CA 92675
DavidBelardes@hotmail.com
(949) 293-8522
(949) 493-4933 - Home

Juaneno Band of Mission Indians Acjachemen Nation
Anthony Rivera, Chairman
31411-A La Matanza Street Juaneno
San Juan Capistrano CA 92675-2674
arivera@juaneno.com
(949) 488-3484

(530) 354-5876 - cell

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
Gabrielino Tongva
tattnlaw@gmail.com
310-570-6567

Gabrielino Tongva Indians of California Tribal Council
Robert F. Doramae, Tribal Chair/Cultural
P.O. Box 490 Gabrielino Tongva
Bellflower , CA 90707
gtongva@verizon.net
562-761-6417 - voice
562-925-7989 - fax

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
(626) 286-1262 -FAX
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 Fax

Juaneno Band of Mission Indians
Alfred Cruz, Cultural Resources Coordinator
P.O. Box 25628 Juaneno
Santa Ana , CA 92799
alfredgcruz@sbcglobal.net
714-998-0721
714-998-0721 - FAX
714-321-1944 - cell

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2010051055; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Baker Water Treatment Plant Project; located in Orange County, California.

Native American Contacts
May 28, 2010
Orange County

Juanefño Band of Mission Indians
Sonia Johnston, Tribal Chairperson
P.O. Box 25628 Juaneno
Santa Ana , CA 92799
sonia.johnston@sbcglobal.
(714) 323-8312

Gabrielino-Tongva Tribe
Bernie Acuna
1875 Century Pk East #1500 Gabrielino
Los Angeles , CA 90067
(310) 587-2203
(310) 428-7720 - cell
(310) 587-2281

Juaneno Band of Mission Indians Acjachemen Nation
Joyce Perry; Representing Tribal Chairperson
4955 Paseo Segovia Juaneno
Irvine , CA 92612
949-293-8522

Gabrielino-Tongva Tribe
Linda Candelaria, Chairwoman
1875 Century Park East, Suite 1500
Los Angeles , CA 90067 Gabrielino
(310) 587-2203
310-428-5767- cell
(310) 587-2281
lcandelaria1@gabrielinoTribe.org

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2010051055; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Baker Water Treatment Plant Project; located in Orange County, California.



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

May 28, 2010

Mr. Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

ENGINEERING & PLANNING
JUN 03 2010
IRVINE RANCH
WATER DISTRICT

Dear Mr. Weghorst:

Notice of Preparation of a Draft Environmental Impact Report (Draft EIR) for the Irvine Ranch Water District Baker Water Treatment Plant Project

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the above-mentioned document. The SCAQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the draft environmental impact report (EIR). Please send the SCAQMD a copy of the Draft EIR upon its completion. **In addition, please send with the draft EIR all appendices or technical documents related to the air quality analysis and electronic versions of all air quality modeling and health risk assessment files. Electronic files include spreadsheets, database files, input files, output files, etc., and does not mean Adobe PDF files. Without all files and supporting air quality documentation, the SCAQMD will be unable to complete its review of the air quality analysis in a timely manner. Any delays in providing all supporting air quality documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. Alternatively, the lead agency may wish to consider using the California Air Resources Board (CARB) approved URBEMIS 2007 Model. This model is available on the SCAQMD Website at: www.urbemis.com.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis.

The SCAQMD has developed a methodology for calculating PM_{2.5} emissions from construction and operational activities and processes. In connection with developing PM_{2.5} calculation methodologies, the SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD requests that the lead agency quantify PM_{2.5} emissions and compare the results to the recommended PM_{2.5} significance thresholds. Guidance for calculating PM_{2.5} emissions and PM_{2.5} significance thresholds can be found at the following internet address: http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html.

In addition to analyzing regional air quality impacts the SCAQMD recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LST's can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the proposed project, it is recommended that the lead agency perform a localized significance analysis by either using the LSTs developed by the SCAQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at <http://www.aqmd.gov/ceqa/handbook/LST/LST.html>.

In the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the lead agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis") can be found on the SCAQMD's CEQA web pages at the following internet address: http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html. An analysis of all toxic air contaminant impacts due to the decommissioning or use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures

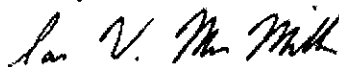
In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate significant adverse air quality impacts. To assist the Lead Agency with identifying possible mitigation measures for the project, please refer to Chapter 11 of the SCAQMD CEQA Air Quality Handbook for sample air quality mitigation measures. Additional mitigation measures can be found on the SCAQMD's CEQA web pages at the following internet address: www.aqmd.gov/ceqa/handbook/mitigation/MM_intro.html Additionally, SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook contain numerous measures for controlling construction-related emissions that should be considered for use as CEQA mitigation if not otherwise required. Other measures to reduce air quality impacts from land use projects can be found in the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. This document can be found at the following internet address: <http://www.aqmd.gov/prdas/aqguide/aqguide.html>. In addition, guidance on siting incompatible land uses can be found in the California Air Resources Board's Air Quality and Land Use Handbook: A Community Perspective, which can be found at the following internet address: <http://www.arb.ca.gov/ch/handbook.pdf>. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's World Wide Web Homepage (<http://www.aqmd.gov>).

The SCAQMD is willing to work with the Lead Agency to ensure that project-related emissions are accurately identified, categorized, and evaluated. If you have any questions regarding this letter, please call Ian MacMillan, Program Supervisor, CEQA Section, at (909) 396-3244.

Sincerely,



Ian MacMillan

Program Supervisor, CEQA Inter-Governmental Review
Planning, Rule Development & Area Sources

IM

ORC100519-03

Control Number



June 7, 2010

Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618-3102

ENGINEERING & PLANNING

JUN 09 2010

IRVINE RANCH
WATER DISTRICT

Mayor
Peter Herzog

Mayor Pro Tem
Richard Dixon

Council Members
Kathryn McCullough
Marcia Rudolph
Mark Tettemer

City Manager
Robert C. Dunek

Subject: Notice of Preparation of an EIR for the IRWD Baker Water Treatment Plant Project

Dear Paul,

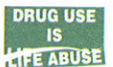
Thank you for the opportunity to review the above-referenced NOP. The City of Lake Forest has no comments at this time. Please provide a copy of the Draft EIR when available. My contact information is below.

Cheryl Kuta, Planning Manager
City of Lake Forest
25550 Commercentre Drive, Suite 100
Lake Forest, CA 92630
ckuta@lakeforestca.gov
(949) 461-3479 (direct)

Sincerely,
CITY OF LAKE FOREST

Cheryl Kuta, AICP
Planning Manager

cc Ted Simon, Engineering Services Manager
Carrie Tai, Senior Planner





CITY OF ORANGE

DEPARTMENT OF COMMUNITY DEVELOPMENT

www.cityoforange.org

ADMINISTRATION
(714) 744-7240
fax: (714) 744-7222

PLANNING DIVISION
(714) 744-7220
fax: (714) 744-7222

BUILDING DIVISION
(714) 744-7200
fax: (714) 744-7245

CODE ENFORCEMENT DIVISION
(714) 744-7244
fax: (714) 744-7245

ENGINEERING & PLANNING

June 17, 2010

JUN 17 2010

Attn: Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA. 92618

IRVINE RANCH
WATER DISTRICT

#20-10
via email: weghorst@irwd.com

Subject: Notice of Preparation (NOP) of an Environmental Impact report (EIR) for the Irvine Ranch Water District (IRWD) Baker Water Treatment Plant Project.

Dear Mr. Weghorst,

The City of Orange (City) has reviewed the NOP for an EIR for IRWD's Baker Water Treatment Plant project. It is our understanding that the project consists primarily of construction of a new Water Treatment Plant and treated water conveyance pipelines within the City of Lake Forest. Raw water supply for the system is proposed to come from Irvine Lake and imported Metropolitan Water District (MWD) water and would be conveyed via existing pipelines to the existing Baker Pipeline and ultimately to the proposed Baker Water Treatment Plant. To deliver water from Irvine Lake to the Baker Pipeline, it is our understanding that the project includes construction of a new pump station at the existing Baker/Irvine Lake Pipeline Flow Control Facility near Peters Canyon Reservoir. This proposed pump station is within City of Orange jurisdictional boundaries. As such, the City may be a "responsible agency" under the California Environmental Quality Act (CEQA) and may use the project EIR for CEQA compliance purposes if and when any discretionary actions are taken.

The City would appreciate consideration of the following comments related to the above ground pump station proposed within Orange jurisdiction. Note that the NOP's description of the pump station was general and therefore the comments below are also general. The City will be looking for additional project description details related to the pump station within the Draft EIR.

1. **Aesthetics-** As stated in the NOP, the proposed pump station is located within and adjacent to Peters Canyon Reservoir (which is designated Open Space in our City General Plan and zoning code). The site is also surrounded by residential uses. The City requests that the EIR include view simulations for sensitive visual receptors in the surrounding area such as residential uses, and Peters Canyon Regional Park users. If the proposed pump station is visible, the City requests landscape treatments that would minimize views from surrounding

residential areas and provide an appropriate visual transition between the project site and surrounding open space areas.

2. **Noise-** As stated in the NOP, the proposed project would generate noise that could affect nearby sensitive receptors. The City requests that the EIR quantify operational noise from the pump station and evaluate whether the noise will be audible at nearby existing and planned residential uses. (For example, the Santiago Hills II residential development has been approved for the area east of Jamboree Road, but is not yet constructed). In addition, the EIR should evaluate whether construction and operational noise could affect sensitive biological communities located at the adjacent Peters Canyon Regional Park.
3. **Traffic-** As stated in the NOP, the project could add traffic trips to local streets during construction of the project. The City requests that the EIR quantify construction traffic trips associated with the pump station and include mitigation measures (if appropriate) such as limiting construction haul trips to non-peak traffic hours. Note that a City transportation, haul or both permits may be required if the project involves dirt hauling or oversized vehicles on City streets. Hauls in excess of 30,000 cubic yards requiring the use of City streets will require City Council approval and compliance with additional measures and conditions. Also, the City requests that the EIR evaluate whether site access for the proposed project at Jamboree Road is designed appropriately and safe.
4. **Land Use-** The City is interested in the evaluation of project consistency with the City's General Plan land use designations, policies and zoning provisions, and also project compatibility with surrounding land uses. In addition, please note that new construction within the City typically undergoes a "Site Plan Review" and "Design Review" process to ensure that proposed site and architectural design meets City standards and is visually compatible with the surrounding area. The City requests that the project undergo this review, both to ensure interagency coordination and also as a means of mitigating aesthetic and other environmental effects related to site design.

Thank you for the opportunity to provide comments on the NOP. If you have any questions, please feel free to contact Jennifer Le, Senior Planner/Environmental Review Coordinator at (714) 744 7238.

Sincerely,



Alice Angus
Community Development Director

cc: Joe DeFrancesco, Public Works Director
Amir Farahani, City Traffic Engineer
Michael Wolfe, Acting Water Manager
Jennifer Le, Senior Planner/Environmental Review Coordinator

DEPARTMENT OF TRANSPORTATION

District 12
3337 Michelson Drive, Suite 380
Irvine, CA 92612-8894
Tel: (949) 724-2241
Fax: (949) 724-2592



*Flex your power!
Be energy efficient!*

ENGINEERING & PLANNING

JUN 17 2010

IRVINE RANCH
WATER DISTRICT

June 15, 2010

Paul Weghorst
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

File: IGR/CEQA
SCH#: 2010051055
Log #: 2512
SR-241

Subject: Baker Water Treatment Plant Project

Dear Mr. Weghorst,

Thank you for the opportunity to review and comment on the **Notice of Preparation (NOP) for the Baker Water Treatment Plant Project**. The proposed project will include a new offsite pump station near Peters Canyon Reservoir; a new non-reclaimable waste pipeline (NRW) to convey NRW from Baker Water Treatment Plant (WTP) to IRWD's sanitary sewer; and may include new pipelines to convey treated water from Baker WTP to the South County Pump Station and Pipeline. The project would provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity and distribution infrastructure for potable water. This project is located within the City of Orange and the nearest State Route to the project is SR-241.

The Department of Transportation (Department) is a responsible agency on this project and we have the following comments:

1. If any project work (e.g. storage of materials, street widening, emergency access improvements, sewer connections, sound walls, storm drain construction, street connections, etc.) will occur in the vicinity of the Department's Right-of-Way, an encroachment permit is required prior to commencement of work. Please allow 2 to 4 weeks for a complete submittal to be reviewed and for a permit to be issued. When applying for an Encroachment Permit, please incorporate Environmental documentation, SWPPP/WPCP, Hydraulic Calculations, Traffic Control Plans, Geotechnical Analysis, Right-of-Way certification and all relevant design details including design exception approvals. For specific details on the Caltrans Encroachment Permits procedure, please refer to the Caltrans Encroachment Permits Manual. The latest edition of the manual is available on the web site: <http://www.dot.ca.gov/hq/traffops/developserv/permits/>

Please continue to keep us informed of this project and any future developments, which could potentially impact the State Transportation Facilities. If you have any questions or need to contact us, please do not hesitate to call Marlon Regisford at (949) 724-2241.

Sincerely,

A handwritten signature in black ink, appearing to read "Christopher Hefre". The signature is fluid and cursive, with a large initial "C" and "H".

Christopher Hefre, Branch Chief
Local Development/Intergovernmental Review

C: Terry Roberts, Office of Planning and Research

Irvine Ranch Water District
Baker Water Treatment Plant Project
NOP Scoping Meeting

ENGINEERING & PLANNING

JUN 11 2010

IRVINE RANCH
WATER DISTRICT

Comment Card

Written comments may be submitted tonight during the meeting or mailed to Paul Weghorst.
The NOP comment period ends June 17, 2010.

Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92618-3102

I have the following comments regarding the Notice of Preparation (NOP) for the subject project:

I live on Jenner. Please consider dual pane windows for the residence on Jenner & Marin if there will be disturbing noise coming from your plant. Thanks for the help.

Name: WALTER TROTECHAUD Phone: 562-209-4318

Address: 21081 JENNER LAKE FOREST, CA. 92630

Irvine Ranch Water District
Baker Water Treatment Plant Project
NOP Scoping Meeting

Comment Card

Written comments may be submitted tonight during the meeting or mailed to Paul Weghorst.
The NOP comment period ends June 17, 2010.

Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92618-3102

ENGINEERING & PLANNING

JUN 11 2010

IRVINE RANCH
WATER DISTRICT

I have the following comments regarding the Notice of Preparation (NOP) for the subject project:

1. Noise - is a big concern - As of Now we hear no noise - And
this should remain this way -

2. Also The slope Along Wisteria is not maintained on the
upper portion - ~~DEP~~ I would like that planted and
properly maintained

3. Also The Chain link fence Along Wisteria. The barbed wire
and fence are old and rusty looking. Would like a new
style fence - One that maintains the security for your
facility but also is aesthetically pleasing.

Maybe a hooked bar fence like what is put around Association
pools - They provide security and look better

Name: Dave Alexander

Phone: 949 421-7004

Address: 21091 Jenner Lake Forest

Irvine Ranch Water District
Baker Water Treatment Plant Project
NOP Scoping Meeting

Comment Card

Written comments may be submitted tonight during the meeting or mailed to Paul Weghorst.
The NOP comment period ends June 17, 2010.

Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92618-3102

I have the following comments regarding the Notice of Preparation (NOP) for the subject project:

Impact to Serrano Creek trail. Noise during construction.
Weekend work - starting time and end times.
What type of equipment to use. How do you plan to
remove extra dirt? What do you do with dirt during
construction? Will trail be closed during construction?

Name: John Brashears

Phone: (949) 458-1920

Address: 21292 Valewood, Lake Forest, CA 92630

photo graphs

**Irvine Ranch Water District
Baker Water Treatment Plant Project
NOP Scoping Meeting**

Comment Card

Written comments may be submitted tonight during the meeting or mailed to Paul Weghorst.
The NOP comment period ends June 17, 2010.

ENGINEERING & PLANNING
JUN 17 2010

IRVINE RANCH
WATER DISTRICT

Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92618-3102

I have the following comments regarding the Notice of Preparation (NOP) for the subject project:

- ① existing / future Aesthetic quality scenic view should encompass all present / future proposed obstructions / constructions on water Department property. Seeing the "Big" picture before starting project.
- ② Reason for Choosing site ① elevation ② water Department owns land ③ provides needed services
check the trust deed & make sure water Department is not Leasing Land
- ③ check for plugged oil wells on property or near by.
- ④ Air Quality
Monitor gigahertz radiation transmission for health purpose because the BAKE treatment site is surrounded by residential & it could effect those with immune, dehydration, Epson Barr, heart pacers, etc.
- ⑤ Geology / Soil + Seismicity
check all faults + fissures on property + close by. New maps recently available from U.S Geological Survey
- ⑥ Guarantee good monitoring system that would detect Ammonia based leaking into water TABLE.
- ⑦ Build Holding tanks containing water / Ammonia based chemicals to the correct earthquake specifications.

Name:

Peggy Falcon

Phone:

(949) 855-2869

Address:

21315 McIntosh

LAKE FOREST

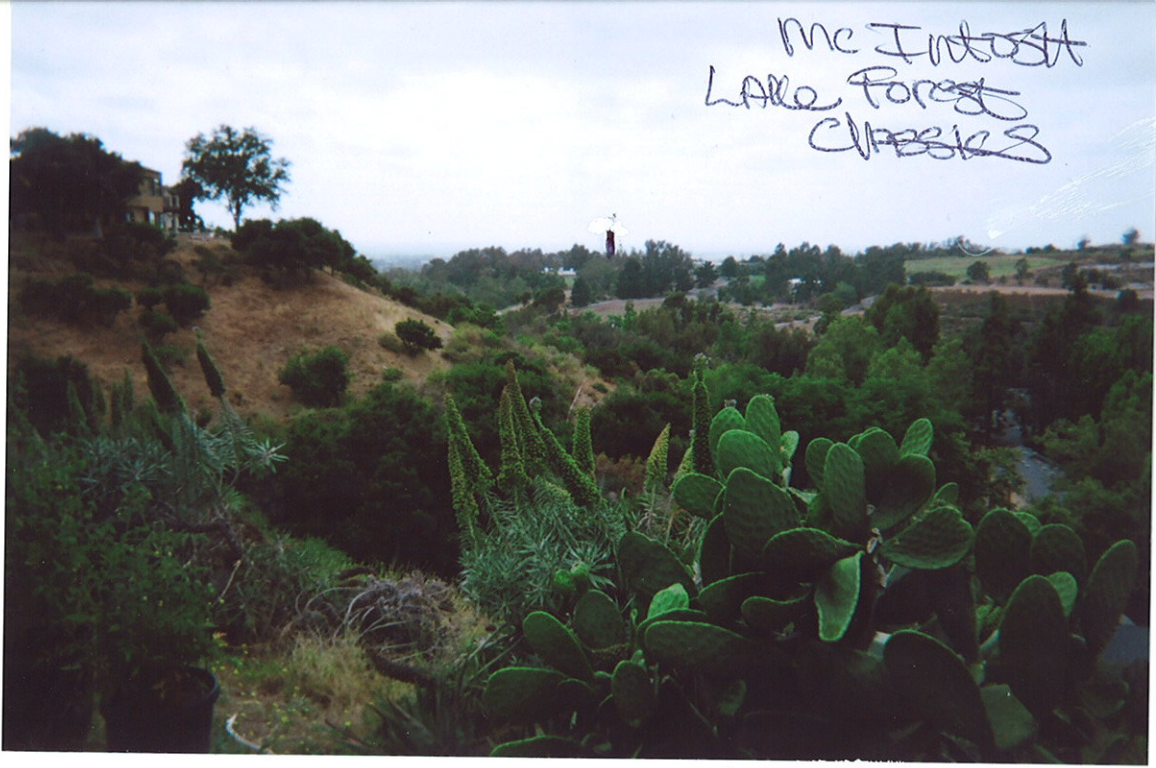
Wisteria
Sandcastle



too
mic Intosh
picture standing
Here



me Intost
LALe Forest
CLASSICS



**Irvine Ranch Water District
Baker Water Treatment Plant Project
Scoping Meeting
May 26, 2010
7:00 p.m. presentation
15600 Sand Canyon
Irvine, CA 92618**

Scoping Meeting Verbal Comments

- Commenter requests an evaluation of geology with a specific emphasis on an evaluation of geologic fissures within the vicinity of the project site.
- Will hazardous materials be used and evaluated?
- What are landscaping plans?
- What are the construction work times?
- Any nighttime construction?
- When will construction begin?
- Will trails be closed during sewer construction?
- How long will sewer construction affect trails?
- How will dust control be implemented during construction?
- Will there be much night lighting?
- Address operational noise and light.
- Decibels outside building needs to be addressed
- Will night time noise levels increase?
- Will there be any odors?

Appendix B

Air Quality Data (URBEMIS)

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name:

Project Name: IRWD baker plant 208671 08-18-10

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011 TOTALS (tons/year unmitigated)	0.19	1.63	0.85	0.00	0.33	0.08	0.41	0.07	0.07	0.14	175.98
2012 TOTALS (tons/year unmitigated)	0.87	1.68	1.16	0.00	0.41	0.10	0.50	0.09	0.09	0.17	212.51

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name:

Project Name: IRWD baker plant 208671 08-18-10

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011 TOTALS (lbs/day unmitigated)	5.03	45.14	22.34	0.01	10.03	2.03	12.06	2.10	1.86	3.96	4,838.68
2012 TOTALS (lbs/day unmitigated)	20.38	42.03	21.08	0.01	13.81	1.86	14.88	2.88	1.71	3.87	4,838.66

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\IRWD pipeline 08 18 10.urb924

Project Name: IRWD PIPELINE 208671 08-18-10

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011 TOTALS (tons/year unmitigated)	0.27	2.20	1.21	0.00	1.54	0.11	1.65	0.32	0.10	0.42	232.39
2012 TOTALS (tons/year unmitigated)	0.35	2.86	1.63	0.00	2.14	0.14	2.28	0.45	0.13	0.58	323.22

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\IRWD pipeline 08 18 10.urb924

Project Name: IRWD PIPELINE 208671 08-18-10

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011 TOTALS (lbs/day unmitigated)	4.84	40.07	22.02	0.00	28.01	2.00	30.02	5.85	1.84	7.70	4,225.20
2012 TOTALS (lbs/day unmitigated)	4.56	37.38	21.37	0.00	28.01	1.81	29.83	5.85	1.67	7.52	4,225.15

Greenhouse Gas (GHG) Emissions Calculations

Project Name: IRWD Baker Plant
 ESA Proj. Number: 208671

Greenhouse Gas (GHG) Emissions from Area Sources and Vehicles

	Annual Emissions		
	pounds (lbs.)	Tons	Metric Tons
URBEMIS2007 Area Emissions	0	0	0
URBEMIS2007 Vehicle Emissions	0	0	0
Total Emissions (area sources + vehicles)	0	0	0

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Estimated Project Annual Electrical Use: 26,700,000 kWh (kilowatt hours)/year
 26,700 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual		CO2 Equivalent Factor	Annual
		Project Electricity mWh	GHGs metric tons		CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	650	26,700	7,872	1	7872
Nitrous Oxide (N2O)	0.0037	26,700	0.0	296	13
Methane (CH4)	0.0067	26,700	0.1	23	2
Total Indirect GHG Emissions from Project Electricity Use=					7887

Total Annual Greenhouse Gas (GHG) Emission from Project Operations -- All Sources (CO2 equivalent Metric Tons)

Area Sources	0
Vehicles	0
Electrical Use	7887
Total=	7,887

Notes and References:

Total Emissions from Indirect Electricity Use
 Formula and Emission Factor from The California Climate Action Registry Report Protocol 2006

Pg. 32 (CCARRP) gives Equations

Southern California Edison gives CO2 output emission rate (lbs/mWh)
 650 lbs/mWh

Pg. 85 (CCARRP) gives CO2 equivalency factors

Pg. 87 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
 Methane - 0.0067 (lbs/mWh)
 Nitrous Oxide - 0.0037 (lbs/mWh)

lbs/metric ton = 2204.62

Percentage of 25,000 31.5%
 Percentage of 174 Million 0.0045%
 percentage of 10,000 79%

	Tons from URBEMIS	Metric Tons
Construction	536	486

Amortized over 30 years
 16 metric tons/yr
 7,903 total

Appendix C

Biological Technical Report

IRVINE RANCH WATER DISTRICT
BAKER WATER TREATMENT PLANT
Biological Resources Assessment

Prepared for
Irvine Ranch Water District

November 2010



IRVINE RANCH WATER DISTRICT

BAKER WATER TREATMENT PLANT

Biological Resources Assessment

Prepared for
Irvine Ranch Water District

November 2010



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Oakland

Olympia

Petaluma

Portland

Sacramento

San Diego

San Francisco

Seattle

Tampa

Woodland Hills

D208671

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List of Attachments

- Figure 1 Project Location
- Figure 2 Proposed Project Components
- Figure 3 Special-Status Occurrences Within 5-mile Radius of Baker Water Treatment Plant
- Figure 4 Special-Status Species Occurrences Within 5-mile Radius of the Peter's Canyon Pump Station
- Figure 5 Vegetation

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-------------------------------------------------------------------------------------------------------	---

Biological Resource Assessment

IRWD Baker Water Treatment Plant

Environmental Science Associates (ESA) prepared the following biological resource assessment based on a review of available background information and site visits on March 27, 2009 to the Irvine Ranch Water District Baker Regional Water Treatment Plant and Peters Canyon Reservoir Pump Station, as well as a June 29, 2010 visit to the site of a proposed sewer pipeline in a recreational trail along Serrano Creek. All study areas are located in Orange County, California (**Figure 1**). The following report presents our findings and conclusions regarding the proposed project sites' potential for supporting significant biological resources and proposes mitigation measures that may be undertaken in order to protect those resources.

1.0 Introduction and Purpose

This report identifies the biological resources present at three locations planned for construction or reconstruction by the Irvine Ranch Water District (IRWD). The proposed project calls for the construction of the Baker Regional Water Treatment Plant (RWTP) on site at the existing Baker Filter Plant in the City of Lake Forest. In addition to the Baker RWTP, the proposed project also would include a new offsite pump station at Peters Canyon Reservoir (Raw Water Pump Station), a meter exchange and pipeline replacement at OC-33, a new sewer pipeline to convey non-reclaimable waste (NRW) from the Baker WTP to IRWD's sanitary sewer system, and new pipelines to convey treated water from the Baker RWTP to the South County Pipeline. New facilities that would be constructed at the proposed Baker RWTP include an emergency overflow 48-inch diameter pipeline that conveys overflow water from the forebay and disinfection facility to Serrano Creek. The locations of the project components are mapped on **Figure 2**.

The purpose of this biological assessment is to document existing conditions of the project sites and to evaluate the potential for the project to have any direct or indirect impacts on sensitive habitats, wetland resources, or rare, threatened, or endangered (special-status) plant or wildlife species.

2.0 Methods

ESA conducted a review of available background information including the proposed project layout, aerial photographs, and local soils survey. The databases search included the California Natural Diversity Database (CNDDDB) (CDFG, 2010), the California Native Plant Society Electronic Inventory (CNPS, 2010), and the U.S. Fish and Wildlife Service endangered species list (USFWS, 2010). The CNDDDB provided a list and mapped locations of special-status plant and wildlife species that have been recorded in the vicinity of the project site (**Figures 3 and 4**). ESA queried these sources for special-status species records in the Lake Forest U.S. Geological Survey 7.5-minute quadrangle and the eight surrounding quadrangles (Orange, Tustin, Black Star Canyon, Corona South, Santiago Peak, Canada Gobernadora, San Juan Capistrano, and Laguna

Beach). The potential for special-status species to occur on the project site was based on the proximity of the project to previously recorded occurrences in the CNDDDB, on-site vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, and geographic ranges of special-status plant and wildlife species known to occur in the region.

ESA biologists conducted field reconnaissance on March 17, 2009 to document the existing conditions of the site in terms of habitat for plant and wildlife species, and the potential to support wetland and/or riparian habitats. An additional field reconnaissance was conducted on June 29, along the Serrano Creek Trail where a proposed sewer pipeline was added to the project description. The assessment included an inventory of plants within and adjacent to the project's area of disturbance; characterization of onsite and adjacent plant communities and determination of their suitability to support special-status plants or animals; identification of jurisdictional resources (e.g., "waters of the U.S." and state protected waters), protected trees, or vegetation that could potentially be impacted; and, the presence of any wildlife movement corridors. The reconnaissance level field surveys were conducted on foot throughout the project areas. Plant and wildlife species observed in the field were recorded. All wildlife species observed during field surveys by sight, call, tracks, nests, scat (fecal droppings), remains, or other signs were recorded. Binoculars and field guides were used for identification as necessary. Lists of special-status plant and animal species that have been previously recorded in the region are presented in **Table 1**.

3.0 Environmental Setting and Site Descriptions

3.1 Regional Setting

The proposed project is located in the Saddleback Valley region of Orange County, California. The climate in this region can be characterized as Mediterranean, with an average high and low temperature 75.4 °F and 49.4 °F, respectively. Annual precipitation averages 12.86", with 10.74" accumulating from November to March. Elevation in the project area ranges from approximately 630 feet at the Treated Water Connection Point Option 1 to approximately 475 feet at Serrano Creek. The proposed project would provide increased water supply reliability in southern Orange County by creating redundancy of treatment system capacity and distribution infrastructure for potable water.

The project area lies within the Newport Bay Watershed, which drains approximately 152.02 square miles of southern Orange County to the Pacific Ocean. Serrano Creek and other drainages in the project area are part of the San Diego Creek/Peters Canyon Wash subwatershed, which is the largest subwatershed in the Newport Bay watershed and collectively drains into the northeastern end of Upper Newport Bay.

3.2 Local Setting

Baker Treatment Plant

As shown in Figure 2, the proposed Baker RWTP would be constructed on the southernmost portion of a 98-acre parcel in the City of Lake Forest at the site of the existing Baker Filter Plant. The Baker Filter Plant includes the following existing facilities: various influent and effluent

pipelines, filter building, Well No. 1 reservoir, Zone 2 West domestic water pump station, Zone B recycled water pump station, one 3.4 million gallon (MG) partially-buried concrete potable reservoir, two 2.0 MG above-ground steel tank recycled water reservoirs, two 16 MG buried concrete potable reservoirs, and office/storage buildings (RBF, 2008). Currently, Well No. 1 is operational, providing supplemental water to the Zone A recycled water system. Water from Well No. 1 is filtered onsite before entering the recycled water system.

The project site is largely vacant land and is located within Non-Reserve Lands in the Central Subarea of the Orange County Natural Communities conservation Program (NCCP). A residential development is planned in the northern portion of the site along with a detention basin and a 3-acre park in the southern corner of the site.

Treated Water Pipeline Alternatives

Two alternatives for the pipeline connecting the Baker facility to the South County Pipeline were evaluated. The alternatives run in a northwesterly direction from the Baker plant, adjacent to a residential area, characterized by paved roads, ornamental landscaping, and varying amounts of native and non-native vegetation. Where they diverge, alternative 1 crosses an open space area consisting of coastal sage scrub (CSS), while alternative 2 continues within the landscaped edge of the residential area.

OC-33 Pipeline Replacement

As part of the overall project, IRWD is required by the Metropolitan Water District of Southern California (MWD) to upsize a 10-ft. portion of the OC-33 pipeline from 40 inch pipe to 50 inch pipe. The pipeline is located in a previously disturbed area devoid of vegetation and ground disturbance from work activities will be limited to the length (10 ft.) of the pipeline being upsized. Work activities associated with the pipeline replacement include excavating/trenching, soil stockpiling, backfilling, and re-grading.

Raw Water Pump Station

The site for the proposed Raw Water Pump Station is bordered by Jamboree Road to the east, Peters Canyon Reservoir to the west, willow riparian woodland to the north, and coastal sage scrub vegetation to the south. The existing Intertie facility is fenced in, mostly paved or barren ground that is void of vegetation, and includes existing structures. The proposed pump station would be located at Peters Canyon Reservoir in the City of Orange. The pump station would be aboveground, located near the existing AMP Flow Control facility, with a footprint of 50 by 50 feet (2500 square feet). The pump station would include four 250-horsepower pumps and one pressure relief valve housed in a new building. Construction activities will be constrained within the boundaries of the existing facilities and previously disturbed ground at the Peters Canyon Reservoir.

Serrano Creek Trail Sewer Pipeline

The proposed sewer pipeline would be constructed within an easement along the existing Serrano Creek Trail that extends along the northern boundary of Serrano Creek. This portion of the

Serrano Creek Trail is bordered to the north by residential neighborhoods and is an actively used pedestrian trail. The portion of Serrano Creek where the emergency outflow is proposed is undisturbed and consists mostly of riparian woodland. Approximately 0.6 mgd of NRW would be generated at the proposed Baker WTP and conveyed to the IRWD sanitary sewer system. A new connection at the southeastern corner of the site will be necessary, as well as new pipeline in the trail along Serrano Creek. Thus, approximately 2,500 linear feet of new 15-inch sewer pipeline would be installed along the Serrano Creek Trail in the City of Lake Forest's Serrano Creek Park to connect to an existing 15-inch sewer pipeline with adequate capacity. The proposed sewer pipeline alignment would be located within an existing 15-foot utility easement owned by IRWD. NRW would be conveyed to IRWD's Los Alisos Water Reclamation Plant for treatment.

Serrano Creek Emergency Overflow

There are two free surface facilities planned at the Baker site: 1) forebay and 2) chlorine contact basin. Each of these facilities will be constructed as a concrete tank with an overflow. Under possible, yet infrequent conditions, the Baker WTP may require discharge of raw water from the forebay, or filtered water from the chlorine contact basin. To handle the flow a 48-inch diameter reinforced concrete pipeline is planned. The pipeline will enable water overflows to be conveyed to Serrano Creek, south of the Baker site. The future development at the Baker site will also require a new point of storm drain discharge to Serrano Creek. It is currently planned to coordinate the points of discharge to construct concrete or rip-rap as necessary to prevent erosion at the creek. In addition, IRWD is currently working with both the Baker WTP and development teams related to permit issues for the discharge.

3.3 Plant Communities and Wildlife Habitats

Plant communities are assemblages of plant species that occur together in the same area. They are defined by species composition and relative abundance. ESA mapped vegetation communities within and surrounding the project area (**Figure 5**) according to the California Department of Fish and Game's *List of California Terrestrial Natural Communities* (CDFG 2003). Common plant names are taken from J.C. Hickman (1993). Provided below is a brief description of the existing plant communities and habitats found within the primary components of the proposed project.

Baker Plant

The Baker site consists of existing structures and paved or ornamental landscaped areas. There are several native plants including numerous coast live oak (*Quercus agrifolia*) located throughout the existing facility site. There is one small area of approximately 4.2 acres that can be considered a natural community and is best described as disturbed coastal sage scrub (CSS) it contains a mix of native and introduced species including; buckwheat (*Eriogonum fasciculatum*), coast goldenbush (*Encelia californica*), black sage (*Salvia melifera*), mulefat (*Baccharis salicifolia*), elderberry (*Sambucus mexicana*) black mustard (*Brassica nigra*), brome grasses (*Bromus sp.*), and wild oat (*Avena fatua*).

Treated Water Pipeline Alternatives

Two alternatives were evaluated for construction of the connecting pipeline. Initially the alternatives follow the same path, northwest from the Baker facility through landscape vegetation bordering a residential complex. At approximately halfway along the route, alternative 2 turns to the west continuing through the landscaped vegetation while alternative 1 continues northwest and crosses approximately 1400 feet of disturbed CSS. Species observed in this area include buckwheat, black sage, coast goldenbush, and elderberry. There is also an area within the CSS as that contains a small area of coastal prickly pear succulent scrub (*Opuntia littoralis*), which is also somewhat disturbed from existing trails and recreational use.

Raw Water Pump Station

Construction on this site will be contained within a fenced, previously graded and or paved area currently containing existing IRWD facilities. The surrounding area consists of native habitat with varying degrees of disturbance. These habitats include CSS (adjacent to the project site) and a willow riparian area down slope near the lake (approximately 300 feet away). Species observed in this area include mulefat, coyote bush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), buckwheat, black sage, coast goldenbush, and elderberry. Within the fence line of the existing facilities there are several mature trees including Brazilian pepper and eucalyptus, ornamental landscaping, and some CSS plants (i.e., mostly California buckwheat).

Serrano Creek Trail Sewer Pipeline

Construction of the proposed pipelines would occur through trench installation. The sewer pipeline would be installed within an existing 15-foot-wide utility easement that runs along Serrano Creek Trail. An additional 15-foot-wide temporary construction easement adjacent to and north of the utility easement may also be utilized. If necessary to construct, the treated water pipeline would be installed through approximately 1100 feet of disturbed coastal sage scrub located to the east of the Baker site. The area consists of a 20-ft.-wide compacted dirt pedestrian path that is bordered to the north with landscaped, manufactured slope with mature sycamore (*Platanus racemosa*) and ornamental ground cover. The natural community on the south side of the trail consists of a mix of native and nonnative ruderal vegetation, including black mustard (*Brassica nigra*), mule fat (*Baccharis salicifolia*), calabazilla (*Cucurbita foetidissima*), Toyon (*Heteromeles arbutifolia*), coyote bush, buckwheat, Peruvian pepper (*Schinus molle*), tree tobacco (*Nicotiana glauca*), shortpod mustard (*Hirschfeldia incana*), Russian thistle (*Salsola kali*), storksbill filaree (*Erodium sp.*), common reed (*Phragmites australis*), Canary Island palm (*Phoenix canariensis*), fennel (*foeniculum vulgare*), prickly pear (*Opuntia sp.*), bull thistle (*Cirsium vulgare*), telegraph weed (*Heterotheca grandiflora*), sea fig (*Carpobrotus chilensis*), and horehound (*Marrubium vulgare*). Stands of elderberry and two immature coast live oak trees are also located outside of the easement along the south side of the trail.

Emergency Overflow into Serrano Creek

The portion of Serrano Creek where a proposed emergency overflow may occur is an approximately 0.5-mile stretch of the perennial/intermittent stream south of the Baker site. This

portion of Serrano Creek is characterized as Southern Sycamore Alder Riparian Woodland, a California Department of Fish and Game Sensitive Plant Community, with a dominant overstorey of arroyo willow (*Salix lasiolepis*), sycamore (*Platanus racemosa*), and blue elderberry (*Sambucus Mexicana*). Other overstorey species include red willow (*Salix laevigata*), poplar (*poplar sp.*), coast live oak (*Quercus agrifolia*), and eucalyptus. Common understory species include mule fat, Toyon (*Heteromeles arbutifolia*), common reed, and coyote bush. Wildlife species observed within and in the vicinity of Serrano Creek include American goldfinch (*Carduelis tristis*), house finch (*Carpodacus mexicanus*), common raven (*Corvus corax*), and spotted towhee (*Pipilo maculatus*). Although no raptors or nests were observed during a reconnaissance-level assessment, some of the sycamore and larger eucalyptus trees within the riparian area could potentially provide raptor nesting habitat.

4.0 Special-Status Biological Resources

Plant and animal species are accorded special status because of their recognized rarity or vulnerability to various causes of habitat loss or population decline. Some of these receive specific protection defined in federal or state endangered species legislation. Others have been designated as “sensitive” or special status on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. The California Department of Fish and Game has also designated certain natural communities special status, due to their rarity.

**TABLE 1
SPECIAL-STATUS PLANTS AND ANIMALS WITH POTENTIAL TO OCCUR
IN THE VICINITY OF THE PROJECT SITE**

Species	Listing Status	Habitat Requirements	Potential for Occurrence
Plants			
<i>Baccharis malibuensis</i> Malibu baccharis	1B.1	Coastal scrub, chaparral, cismontane woodland. Conejo volcanic substrates often on exposed road cuts.	None, no habitat present.
<i>Brodiaea filifolia</i> thread-leaved brodiaea	FT, SE, 1B.1	Cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools. Usually associated with grassland and vernal pools.	None, no habitat present.
<i>Callitropsis forbesii</i> Tecate cypress	1B.1	Closed-cone coniferous forest, chaparral. Primarily on north facing slopes, groves often associated with chaparral 250-1500m	None, no habitat present.
<i>Calochortus plummarae</i> Plummer's mariposa-lily	1B.2	Coastal scrub, chaparral, valley and foothill grassland. Rocky and sandy sites, of granitic or alluvial material, often common after fire. 90-1600m	Low

**TABLE 1
SPECIAL-STATUS PLANTS AND ANIMALS WITH POTENTIAL TO OCCUR
IN THE VICINITY OF THE PROJECT SITE**

Species	Listing Status	Habitat Requirements	Potential for Occurrence
<i>Calochortus weedii</i> var <i>intermedius</i> intermediate mariposa-lily	1B.2	Coastal scrub, chaparral, valley and foothill grassland. Dry, rocky slopes and rocky outcrops 120-850m	Low
<i>Centromadia parryi</i> ssp. <i>australis</i> southern tarplant	1B.1	Marshes and swamps (margins), valley and foothill grasslands. Often in disturbed sites near the coast at marsh edges, also in alkaline soils.	None, no habitat present.
<i>Chorizanthe parryi</i> var. <i>fernandina</i> San Fernando Valley spineflower	FC/SE/1B.1	Coastal scrub. Sandy soils, 40-1035m.	None, no habitat present.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i> long-spined spineflower	1B.2	Chaparral, coastal scrub, meadows, valley and foothill grassland. Gabbroic clay. 30-1450m	None, no habitat present.
<i>Dudleya multicaulis</i> many-stemmed dudleya	1B.2	Chaparral, coastal scrub, valley and foothill grassland. Heavy, often clayey soils or grassy slopes. 0-790m	None, no habitat present.
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i> Santa Ana River woollystar	FE/SE/1B.1	Coastal scrub, chaparral, sandy soils on river floodplains or terraced fluvial deposits. 150-610m	None, no habitat present.
<i>Nama stenocarpum</i> mud nama	2.2	Marshes and swamps, Lake shores, river banks, inermittently wet areas 5-500m	None, no habitat present.
<i>Nolina cismontana</i> peninsular nolina	1B.2	Chaparral, coastal scrub. Primarily on sandstone and shale, also on gabbro soils. 140-1275m	None, no habitat present.
<i>Pentachaeta aurea</i> ssp. <i>allenii</i> Allen's pentachaeta	1B.1	Valley and foothill grassland, coastal scrub. Openings in grassland or scrub.	Low
Invertebrates			
<i>Branchinecta sandiegonensis</i> San Diego fairy shrimp		Vernal pools, endemic to Orange and San Diego Cos.	None, no habitat present.
<i>Streptocephalus woottoni</i> Riverside fairy shrimp		Vernal pools, endemic to western Riverside, Orange and San Diego Cos.	None, no habitat present.
Fish			
<i>Catostomus santaanae</i> Santa Ana sucker	FT/SC	Endemic to Los Angeles basin, south coastal streams. Habitat generalist but prefer sand-rubble-boulders, cool clear water and algae.	None, no habitat present.
<i>Gila orcuttii</i> arroyo chub	SC	Los Angeles basin south coastal streams. Slow water stream sections with mud or sand bottoms, feeds on aquatic vegetation and associated invertebrates.	None, no habitat present.

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Species	Listing Status	Habitat Requirements	Potential for Occurrence
<i>Rhinichthys osculus ssp.3</i> Santa Ana speckled dace	SC	Headwaters of the Santa Ana and San Gabriel Rivers. Requires permanent flowing streams with summer temps of 17-20 deg. C. Usually inhabits shallow cobble and gravel riffle.	None, no habitat present.
Amphibians			
<i>Ambystoma californiense</i> California tiger salamander	FPT/SC	Ponds and slow-moving streams, adjacent to grassland with fossorial mammals.	None, no habitat present.
<i>Bufo californicus</i> arroyo toad	FE, SC	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores, loose gravelly areas of streams in drier parts of range.	Low
<i>Rana draytonii</i> California red-legged frog	FT, SC	Lowlands and foothills in or near permanent sources of deep water with dense shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development, access to estivation habitat.	Low
<i>Spea hammondi</i> western spadefoot	SC	Primarily in grassland habitats, can be found in valley-foothill hardwood woodlands. Vernal pools essential for breeding/egg-laying	None, no habitat present.
<i>Taricha torosa torosa</i> Coast Range newt	SC	Coastal drainages from Mendocino Co. to San Diego Co. Terrestrial habitats, will migrate over 1km to breed in ponds, reservoirs and slow moving streams	Low
Reptiles			
<i>Actinemys marmorata pallida</i> southwestern pond turtle	SC	Permanent or nearly permanent bodies of water in many habitat types below 1820m. Requires basking sites.	None, no habitat present.
<i>Anniella pulchra pulchra</i> silvery legless lizard	SC	Sandy or loose loamy soils under sparse vegetation, prefer soils of high moisture content	Low
<i>Aspidoscelis hyperythra</i> orange-throated whiptail	SC	Low elevation coastal scrub, Chaparral and valley-foothill hardwood habitats. Prefers washes and other sandy areas. Perennial plants necessary for major food - termites.	Low

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Species	Listing Status	Habitat Requirements	Potential for Occurrence
<i>Crotalus ruber ruber</i> northern red-diamond rattlesnake	SC	Chaparral, woodland, grassland and desert areas Riverside, Orange, San Diego Co to eastern slopes of mountains. Rocky areas and dense vegetation, needs rodent burrows, cracks in rocks or surface cover objects.	Low
<i>Lampropeltis zonata (pulchra)</i> California mtn. kingsnake (San Diego pop.)	SC	Restricted to San Gabriel, San Jacinto mts.. Valley-foothill hardwood forest, coniferous forest, chaparral, riparian and wet meadows.	None, no habitat present.
<i>Phrynosoma coronatum (blainvillii population)</i> coast (San Diego) horned lizard	SC	Coastal scrub, chaparral. Prefers friable, rocky or shallow sandy soils	Low
<i>Salvadora hexalepis virgultea</i> coast patch-nosed snake	SC	Coastal scrub, chaparral. Requires small mammal burrows for refuge and overwintering.	Low
<i>Thamnophis hammondi</i> two-striped garter snake	SC	Coastal from Salinas Co. to Baja California. Aquatic, found in or near permanent fresh water, streams with rocky beds and riparian vegetation. To 7000ft.	Low
Birds			
<i>Ammodramus savannarum</i> grasshopper sparrow	SC	Dense grasslands on rolling hills, lowland plains, valleys and hillsides. Favors naïve grasslands, loosely colonial when nesting	Low
<i>Asio otus</i> long-eared owl	SC	Oak, willow, cottonwood riparian areas. Requires open land with abundant rodents, nests in abandoned crow, magpie or hawk nests.	Moderate
<i>Athene cunicularia</i> burrowing owl	SC	Open dry annual or perennial grasslands, deserts and scrublands with low-growing vegetation. Subterranean nests, dependent on burrowing mammals, notably California ground squirrel.	Low
<i>Campylorhynchus brunneicapillus sandiegensis</i> coastal cactus wren	SC	Coastal sage scrub and coastal prickly pear succulent scrub. Requires tall <i>Opuntia</i> cactus for nesting/roosting	Moderate
<i>Icteria virens</i> yellow-breasted chat	SC	Summer resident, Willow riparian. Nests in low dense riparian habitat.	Low
<i>Polioptila californica californica</i> coastal California gnatcatcher	FT, SC	Obligate permanent resident of coastal sage scrub below 2500ft. Arid washes, mesas and slopes.	Low.

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Species	Listing Status	Habitat Requirements	Potential for Occurrence
<i>Vireo bellii pusilus</i> least Bell's vireo	FE, SE	Summer resident in So. California, willow riparian, mulefat, mesquite. Nests along margins of bushes.	Low
Mammals			
<i>Antrozous pallidus</i> pallid bat	SC	Deserts, grasslands, shrublands, woodlands and forests. Open dry habitats with rocky areas for roosting. Roost sites must protect bats from high temperature. Sensitive to disturbance of roost sites.	Low
<i>Choeronycteris mexicana</i> Mexican long-tongued bat	SC	Occasional specimens found in San Diego and farther north. Feeds on nectar of night blooming succulents. Roosts in relatively well lit caves and in and around buildings.	Low
<i>Eumops perotis californicus</i> western mastiff bat	SC	Open, semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, chaparral. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Low
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	SC	Coastal scrub of southern California, San Diego to San Luis Obispo Cos. Moderate to dense canopies preferred, abundant in areas with rock outcrops and rocky cliffs and slopes.	Low
<i>Nyctinomops femorosaccus</i> pocketed free-tailed bat	SC	Pine-juniper woodlands, desert scrub, palm oasis, desert wash	Low
<i>Nyctinomops macrotis</i> big free-tailed bat	SC	Low lying arid areas, need high cliffs or rocky outcrops for roosting sites.	Low

Status Codes:

Federal (USFWS)

FE = Federally endangered
 FT = Federally threatened
 FSC = Federal species of concern

State (CDFG)

SE = State endangered
 ST = State threatened
 SC = State species of special concern

CNPS

1B = plants rare, threatened, or endangered in the states and elsewhere
 1B.1 = seriously threatened in California
 1B.2 = rare, threatened, or endangered in California and elsewhere; fairly threatened in California
 2 = plants rare, threatened, or endangered in the state, but common elsewhere
 2.2 = rare, threatened, or endangered in California, not elsewhere; fairly threatened in California
 2.3 = rare, threatened, or endangered in California, not elsewhere; not very threatened in California

4.1 Special-Status Botanical Resources

A CNDDDB search (CDFG, 2010) revealed the recorded occurrences of 13 special status plant species within a five mile radius project area. These species are listed above in **Table 1** and their locations are noted on Figures 3 and 4. Three of the rare plant species found to have nearby records of occurrence are listed as endangered or threatened by either the State of California or the federal government, thread-leaved brodiaea, (*Brodiaea filifolia*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), and Santa Ana River woollystar (*Eriastrum densifolium* ssp. *Sanctorum*). Habitat for any of these three species is not found on the project sites and none of the three is likely to be found on the project sites. Ten other species listed in **Table 1** and designated as rare by the California Native Plant Society (CNPS 2001), have nearby records of occurrence, none of those has a high probability of occurrence on any of the project sites.

4.2 Special-Status Wildlife Resources

The CNDDDB (CDFG, 2010) search revealed the recorded occurrences of 26 special-status wildlife species in the area that may have the potential to occur on the project sites. These species have nearby records documented in the CNDDDB however habitat these species is very limited at the Baker Plant site and the adjacent pipeline alternatives. At Peters Canyon Reservoir habitat for special status species is not found within the fenced area planned for construction although there is habitat adjacent to the site particularly around the perimeter of the reservoir.

4.3 Special-Status Natural Communities

The area of Serrano Creek where an emergency overflow area is to be located is characterized as Southern Sycamore Alder Riparian Woodland; a CDFG-listed sensitive terrestrial community. No natural communities of special concern as designated by the California Department of Fish and Game were recorded in the CNDDDB within the areas of the proposed project site and no natural communities of special concern were observed on the project sites. The plant community is found near by the proposed pipeline route would result in temporary construction along already existing roads and right-of-ways, and would not further restrict wildlife movement. Construction on the proposed project sites would not fragment any portion of the open space habitat, nor inhibit wildlife movement. Project alternative site 3 is located at the edge an already fragmented and developed area and does not constitute a significant wildlife corridor. Impacts to wildlife movement from construction on any of the project alternative sites would not be expected.

4.4 Wildlife Movement Corridors

Construction of new facilities at the Baker Filtration Plant and the proposed Raw Water Pump Station will be within the boundaries of a previously developed site. Construction on the site would not interfere with local or regional wildlife movement. Moreover, the pipeline options occur near the edge of a small patch of coastal sage scrub habitat, which does not represent a wildlife movement corridor due to surrounding urbanization that cuts off movement to open space lands in the region. Nonetheless, some animals adapted to urban conditions are expected to traverse through Serrano Creek from the north, which may include coyote, skunk, opossum, and

raccoon. However, passage through Serrano Creek to the south is terminated at Bake Parkway urban development. Based on aerial photographs and review of the USGS Quadrangle for Lake Forest, Serrano Creek runs underground at Bake Parkway and does not resurface downstream. To the north, Serrano Creek bisects urban development and traverses underneath Highway 241, extending further north to Whiting Ranch and Santiago Canyon which makes up the headwaters of the creek. In summary, animals are not expected to traverse through the proposed project site and the project site is not considered a wildlife migration corridor. Therefore, construction activities associated with the pipeline alignments would not impact any wildlife movement corridors.

4.5 Habitat Conservation Plans and Local Ordinances

The Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) sets forth a proposed Conservation Strategy that would be implemented by the County of Orange in cooperation with state and federal agencies and Participating Landowners in Orange County. The proposed Conservation Strategy focuses on long-term protection and management of multiple natural communities that provide habitat essential to the survival of a broad array of wildlife and plant species.

The Baker RWTP, treated water pipelines and sewer pipelines would be constructed in areas designated as Non-Reserve Lands in the NCCP/HCP. Construction at the Baker RWTP and pipelines will not be in conflict with the NCCP/HCP.

Although the proposed Raw Water Pump Station is located within Reserve Lands of the NCCP/HCP, demolition of existing structures and construction of new facilities at the proposed Raw Water Pump Station will occur entirely within the (disturbed) boundaries of the existing site. The site does not support any habitat capable of supporting any candidate, sensitive or special-status species, therefore construction at the proposed Raw Water Pump Station will not be in conflict with the Orange County NCCP/HCP

Twelve oak trees and several eucalyptus trees occur within the Baker Filtration Plant Facility and may be impacted during the demolition of the existing facilities or the construction of new facilities. The City of Lake Forest does not have tree ordinances for protecting trees; therefore, a permit is not required for the removal of trees. However, a Eucalyptus Tree Cutting Permit must be obtained prior to cutting, pruning or removing any eucalyptus trees. The city's eucalyptus trees currently are threatened by the activity of the Eucalyptus Longhorn Borer Beetle, which causes serious damage and destruction during the period of April 1 through October 31. The city has established a "restrictive period" for which no eucalyptus trees can be cut, pruned or removed during this time.

According to the Recreation and Resource Element of the City's General Plan, development proposals will be reviewed for potential biological resource impacts according to CEQA and applicable state and federal wildlife regulation. Where significant impacts are identified, the City will require modifications to the project to avoid the impact, or require mitigation measures to reduce the impact. The focus of the impact assessment included the following resources:

- Riparian and wetland habitat;
- Coastal sage scrub habitat;
- Rare and endangered plant and animal species;
- Wildlife movement corridors;
- Habitat fragmentation; and
- Significant tree stands.

Riparian and wetland habitats, rare and endangered plant and animal species, wildlife fragmentation, and impacts to CSS have been previously discussed. The Project is located within and surrounded by urban development; therefore, it is already fragmented from open lands and habitats that occur to the east of the city's limits. Moreover, there are no significant tree stands in or near the project boundary.

4.6 Jurisdictional Resources

U.S. Army Corps of Engineers

Wetlands and other waters, e.g., rivers, streams and natural ponds, are a subset of "waters of the U.S." and receive protection under Section 404 of the Clean Water Act (CWA). The U.S. Army Corps of Engineers (USACE) has primary federal responsibility for administering regulations that concern waters and wetlands on the project site under statutory authority of the CWA (Section 404). In addition, the regulations and policies of various federal agencies (e.g., U.S. Department of Agriculture, and Natural Resource Conservation Service [NRCS], USEPA) mandate that the filling of wetlands be avoided to the extent feasible. The USACE requires obtaining a permit if a project proposes placing structures within navigable waters and/or alteration of waters of the United States.

The term "waters of the United States" as defined in Code of Federal Regulations (33 CFR 328.3[a] and [b]; 40 CFR 230.3[s]) includes those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. In extant regulations, these may be taken to be sloughs, wet meadows, or natural ponds; however, the Supreme Court of the United States recently ruled (January 8, 2001: *Solid Waste Agency of Northwestern Cook County (SWANCC) v. United State Army Corps of Engineers et al.*) that certain isolated wetlands do not fall under the jurisdiction of the CWA.

Based on the Supreme Court ruling (SWANCC), non-navigable, isolated, intrastate waters are no longer defined as waters of the United States. Jurisdiction of non-navigable, isolated, intrastate waters may be possible if their use, degradation, or destruction could affect other waters of the United States, or interstate or foreign commerce. Jurisdiction over such other waters is analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on a case-by-case basis.

A more recent Supreme Court case, *Rapanos v. United States* (2006), also questioned the definition of "waters of the United States" and the scope of federal regulatory jurisdiction over such waters, but left open the question as to whether the CWA extends to those waters and wetlands that have a

“significant nexus” to navigable waters of the United States, or whether it is limited to waters with a continuous connection. The implications of this ruling are still being tested in the courts. For example, the California Ninth Circuit Court of Appeals decision, in *Northern California River Watch v. City of Healdsburg* (August 10, 2006), relied on the “significant nexus” definition, an interpretation that suggests little change in the scope of the CWA. To date, neither the USEPA nor the USACE have issued guidelines as to how to implement the CWA in light of these latest rulings. In practice, USACE jurisdictional authority remains as it was prior to *Rapanos*, although the potential exists for changes in the future based on Court decisions and pending regulatory guidance.

California Department of Fish and Game

Under Sections 1600 – 1616 of the California Fish and Game Code, the CDFG regulates activities that would substantially divert, obstruct the natural flow, or substantially change of rivers, streams and lakes. The jurisdictional limits of CDFG are defined in Section 1602 of the California Fish and Game Code as, “bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake....” The CDFG requires a Lake and Streambed Alteration Agreement for activities within its jurisdictional area. Impacts to the jurisdictional area of the CDFG would be considered “significant” in this EIR.

5.0 Analysis and Conclusions

5.1 Impacts

The proposed project is not likely to have negative impacts on special-status species. The previously disturbed nature of the sites containing existing facilities and the disturbance level and proximity to residences of the pipeline alternatives greatly reduce the likelihood that special status species would be encountered. Nevertheless, some precautionary mitigation measures outlined below in Section 5.2 are suggested in order to ensure impacts of less than significant level per CEQA Guidelines.

The proposed construction activities at the Baker Filtration Plant and the proposed Raw Water Pump Station will be within the boundaries of a previously developed site; therefore, no habitats are present to support potentially occurring special-status species. As depicted on **Figure 2**, the proposed Pipeline Option 1 would extend for approximately 1400 feet through coastal sage scrub (CSS), a plant community with the potential to support several special-status species. The proposed Pipeline Option 2 is confined to landscaped areas adjacent to residential development, and would not directly impact CSS habitat. The CSS habitat located adjacent to the proposed pipeline alignments is relatively disturbed by several dirt paths actively used for off-road bicycles and hikers (several bikers and hikers were observed within these coastal sage scrub habitats during the biological assessment conducted by ESA). In addition, the CSS habitat is located immediately adjacent to a high density residential development. Nearby occurrence records (CNDDDB 2009) for special-status species known to occur within CSS plant community include coastal California gnatcatcher (*Poliioptila californica californica*), a federally-listed threatened species, and the following Species of Special Concern: coastal cactus wren (*Campylorhynchus*

brunneicapillus sandiegensis), orange throated whiptail (*Aspidoscelis hyperythrya*), coast patch-nosed snake (*Salvadora hexalepis*), and coast (San Diego) horned lizard (*Phrynosoma coronatum coronatum*).

Approximately 0.7 acres of CSS would be impacted from the proposed Pipeline Option 1 alignment. Due to the disturbed condition of the CSS and its proximity to adjacent residences, coastal California gnatcatchers are not expected to occur. However, the sensitive terrestrial species listed above could be present. Impacts to CSS would be avoided by the proposed Pipeline Option 2 alignment. No special-status species would occur within the landscaped areas located adjacent along the Option 2 alignment.

One raptor nest was observed within the blue gum (*Eucalyptus globulus*) trees located at the western boundary of the Baker Filtration Plant facility. Other birds, including song birds, jays and raptors are expected to nest within the trees and shrubs located throughout the Plant facility, as well as within the vegetation within and adjacent to the proposed Raw Water Pump Station and pipeline alignments. Mitigation measures to reduce impacts to breeding and nesting birds to a level of less than significant are provided below.

The area of the proposed sewer line extension along Serrano Creek Trail is previously disturbed, as the pipeline will be trenched along the trail with a small construction buffer on either side of the trail. Any disturbance to large trees on the south side of the trail located within or adjacent to Serrano Creek would be minimal, especially if trimming and/or cutting can be avoided. Potential raptor-nesting habitat occurs in some of the larger eucalyptus trees within 50 feet of the trail and in Serrano Creek. Although no raptor nests were observed during field surveys, mitigation measures to reduce impacts to breeding and nesting birds to a level of less than significant are suggested.

5.2 Recommended Mitigation Measures

General Measures for Preservation of Biological Resources

In order to mitigate impacts relative to special status species to a level of less than significant, the project applicant should require construction contractors to implement the following measures:

- A City-approved biologist should be retained by the applicant as a construction monitor to ensure that incidental construction impacts on retained biological resources are avoided or minimized. Responsibilities of the construction monitor should include the following:
 - Attend all pre-grading meetings to ensure that the timing and location of construction activities do not conflict with mitigation requirements.
 - Conduct meetings with the contractor and other key construction personnel, describing the importance of restricting work to within the project boundaries and outside of the preserved areas. The monitor should also discuss staging/storage areas for construction equipment and materials. The biological monitor should investigate all on site storage areas to minimize impacts to biological resources.

- Guide the contractor in marking/flagging the construction area, in accordance with the final approved construction plan. Any construction activity areas immediately adjacent to special-status plant populations or other special-status resources may be directed to be flagged or temporarily fenced at the discretion of the monitor.
- Periodically and routinely visit the site during construction to coordinate and monitor compliance with the above provisions.
- Construction personnel should be prohibited from entry into native areas outside the designated construction area, except for necessary construction related activities, such as surveying. All such construction activities in or adjacent to remaining open space areas should be coordinated with the project biologist.
- Exclusionary fencing (i.e., silt fencing) should be installed around the perimeter of all areas where native vegetation is present adjacent to work areas. The exclusionary fencing should be backfilled (or buried) at the base of the fence to exclude reptiles from entering the work area. Installation of exclusionary fencing should be verified by a qualified biologist prior to the commencement of construction or ground disturbing activities.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 USC, Section 703, Supp. I, 1989) prohibits killing, possessing, or trading migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. Migratory birds protected under this law include most native birds, with the exception of a few old world species, such as wrenit (*Chamaea fasciata*), European starling (*Sturnus vulgaris*) rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*) and certain game birds (e.g. turkeys and pheasants). This act encompasses whole birds, parts of birds, and bird nests and eggs. Migratory birds are also protected by the state of California, under Section 3513 of the California Fish and Game Code (DFG Code). The DFG Code also protects all breeding birds under Section 3503, and raptors (eagles, hawks, and owls) under Section 3503.5.

- To avoid impacts to native nesting birds, including cactus wren, the applicant and/or its contractors should retain a qualified biologist to conduct nest surveys in potential nesting habitat within and adjacent to the Project Site prior to construction or site preparation activities. Specifically, within 30 days of ground disturbance activities associated with construction or grading, a qualified biologist should conduct weekly surveys to determine if active nests of bird species protected by the Migratory Bird Treaty Act (MBTA) or the DFG Code are present in the construction zone or within a distance determined by CDFG or the qualified biologist. Because many birds expected to use the project area nest during the late winter (such as Anna's hummingbird [*Calypte anna*] and Cooper's hawk [*Accipiter cooperii*]), breeding bird surveys should be carried out both during the typical nesting/breeding season (mid March through September) and in January and February. The surveys should continue on a weekly basis, with the last survey being conducted no more than five days prior to initiation of clearance or construction work. If ground disturbance activities are delayed, additional pre-construction surveys will be conducted such that no more than five days will have elapsed between the last survey and the commencement of ground disturbance activities. Surveys should include examination of

trees, shrubs, and the ground within grassland for nesting birds, as several bird species known to occur in the area are shrub or ground nesters.

- If active nests are found, clearing and construction activities within a buffer distance determined by CDFG or the qualified biologist (usually 300 ft. for nesting song birds and 500 ft. for nesting raptors and special-status bird species), should be postponed or halted until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting during the same year. Limits of construction to avoid an active nest should be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel should be instructed on the sensitivity of nest areas. The biologist should serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts to these nests will occur. The results of the survey, and any avoidance measures taken, should be submitted to the Irvine Ranch Water District within 30 days of completion of the pre-construction surveys and construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.

Special-Status Natural Communities

For Pipeline Option 1, to avoid impacts to terrestrial, special-status species, such as the orange throated whiptail, coast (San Diego) horned lizard, and coast patch-nose snake, and other animal species, the following measures should occur:

- The applicant should retain a qualified biologist with a CDFG Scientific Collection Permit and Memorandum of Understanding to conduct preconstruction surveys for the California Species of Special Concern that have the potential to occur within the project impact area. These wildlife species include orange throated whiptail, coast (San Diego) horned lizard, and coast patch-nose snake. All special-status wildlife species observed within the project site during preconstruction surveys should be relocated, at the approval of the City and CDFG, to an approved site with suitable habitat for these species. Surveys and relocation of wildlife may occur prior to construction; however, focused surveys must occur within 30 days prior to construction to ensure that no special-status wildlife is present within the project site during construction. Survey and relocation methods should be approved by CDFG prior to commencement of grading.
- For Option 1 of the treated water pipeline, exclusionary fencing (i.e., silt fencing) should be installed around the perimeter of the construction area where native vegetation is present or where suitable habitat is present for supporting potentially occurring special-status (terrestrial) species as determined by a qualified biologist. The exclusionary fencing should be backfilled (or buried) at the base of the fence to exclude reptiles from entering the work area. Installation of exclusionary fencing should be verified by a qualified biologist prior to the commencement of construction or ground disturbing activities.
- Coastal sage scrub and coastal prickly pear succulent scrub communities that are disturbed by construction of the proposed project should be restored on a 1:1 ratio on

open space areas on the project site or on other available property. A restoration plan should be completed and specifies, at a minimum, the following: (1) the location of mitigation sites; (2) the quantity and species of plants to be planted; (3) procedures for creating additional habitat; (4) a schedule and action plan to maintain and monitor the enhancement/restoration area; (5) a list of criteria and performance standards by which to measure success of the mitigation sites; (6) measures to exclude unauthorized entry into the revegetation/enhancement areas; and (7) contingency measures in the event that mitigation efforts are not successful. This restoration plan should be completed prior to construction of the proposed project.

- A Eucalyptus Tree Cutting Permit should be obtained prior to cutting, pruning or removing any eucalyptus trees during the restricted period, April 1 through October 31. The transportation of or disposal of infected eucalyptus trees or logs should occur only as permitted.

Wetlands and Riparian Areas

Construction of proposed Baker WTP and the Raw Water Pump Station would be within the boundaries of the previously developed sites. No riparian or other sensitive habitats are located within these sites. Approximately 0.7 acres of CSS and 0.33 acres of coastal prickly pear succulent scrub would be directly impacted if pipeline Option 1 is implemented. This would be considered a potentially significant impact. According to the City of Lake Forest's General Plan – Recreation Element, the City will require modifications to the project to avoid the impact, or require mitigation measures to reduce the impact to these plant communities if impacts are determined to be significant. Implementation of the recommended Mitigation Measures identified below would reduce impacts to these native plant communities to less-than-significant levels. No other sensitive natural communities occur along the pipeline routes, which includes the proposed sewer line.

Serrano Creek is located immediately to the south of the proposed Baker WTP. During the reconnaissance survey, several runoff drains were observed on the existing facility site that appears to drain directly into Serrano Creek. Drainage into Serrano Creek is assumed, because the Baker site slopes to the south towards the Creek. Implementation of the recommended Mitigation Measures identified below would reduce potential runoff impacts to Serrano Creek during construction of the proposed treatment plant to less than significant levels.

The habitat of Serrano Creek where the emergency overflow would occur is characterized as Southern Sycamore Alder Riparian Woodland; a CDFG-listed sensitive terrestrial community. Temporary emergency overflow events into the creekbed would not result in any impacts to this sensitive natural community; however, small levels of sedimentation, siltation, or erosion could occur. Implementation of the recommended Mitigation Measures identified below would reduce potential impacts to Serrano Creek and the riparian community therein to levels less than significant.

To mitigate impacts to a level of less than significant, the project applicant should require construction contractors to implement the following measures:

- If Option 1 of the treated water pipeline is implemented, then coastal sage scrub and coastal prickly pear succulent scrub communities that are disturbed by construction should be restored at the same location where impacts occur on a 1:1 ratio following the completion of construction activities. If coastal sage scrub or coastal prickly pear succulent scrub would be removed for construction purposes, a restoration plan should be completed that specifies, at a minimum, the following: (1) the location of replacement sites; (2) the quantity and species of plants to be planted; (3) a schedule and action plan to maintain and monitor the re-vegetation area; (4) a list of criteria and performance standards by which to measure success of the planting sites; (5) measures to exclude unauthorized entry into the re-vegetation/enhancement areas; and (6) contingency measures in the event that mitigation efforts are not successful. This restoration plan should be completed prior to construction of the proposed project.
- The construction contractor should install temporary erosion control measures around drains to reduce impacts to Serrano Creek and protect on site drainages from excess sedimentation, siltation, and erosion. These measures should consist of the installation of silt fencing, coirs, berms, and dikes to protect storm drain inlets and drainages.
- No changing of oil or other fluids, or discarding of any trash or other construction waste materials should occur on the project site. Vehicles carrying supplies, such as concrete, should not be allowed to empty, clean out, or otherwise place materials into natural areas on or immediately adjacent to the site.
- Any equipment or vehicles driven and/or operated within or adjacent to on-site drains should be checked and maintained daily, to prevent leaks of materials that if introduced to Serrano Creek could be deleterious to aquatic life. No equipment maintenance should be conducted near on-site drains.
- The construction contractor will coordinate the points of discharge into Serrano Creek to construct discharge dissipation features such as (but not limited to) concrete blocks or rip-rap as necessary to reduce flow rate while reducing sedimentation, siltation, or erosion in the creek. In addition, IRWD will pursue all necessary federal and state permits and additional mitigation measures that may be required as a component of the proposed emergency discharge into Serrano Creek.
- Construction activities within Serrano Creek should be limited to periods where the channel is dry. IRWD should coordinate with local water districts to ensure that the channel remains dry for the duration of installation of any discharge dissipation features.
- No activities should occur within Serrano Creek until appropriate permits have been obtained from the US Army Corps of Engineers (404), local Regional Water Quality Control Board (401), and/or California Department of Fish and Game (SAA)

5.3 Conclusions

While the re-development of the IRWD Baker Treatment Facility and associated construction at Peters Canyon Reservoir and connecting pipelines will take place primarily within the boundaries of previously developed facilities, the-proximity to nearby sensitive biological resources

necessitates care be taken with regard to those resources and that mitigation measures be put in place to protect them. The measures detailed in this report should be employed in order to reduce the level of impacts to biological resources to less than significant levels.

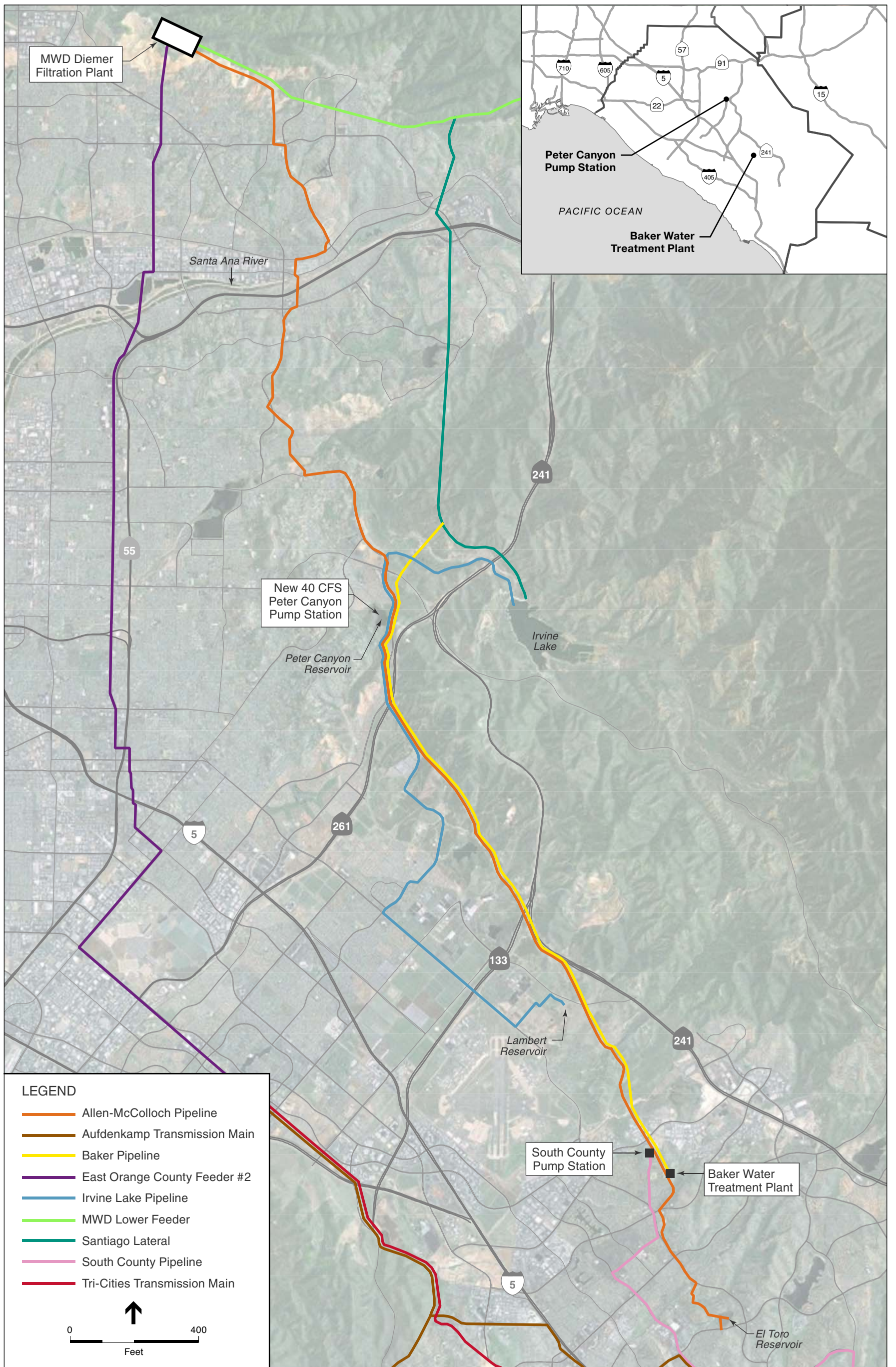
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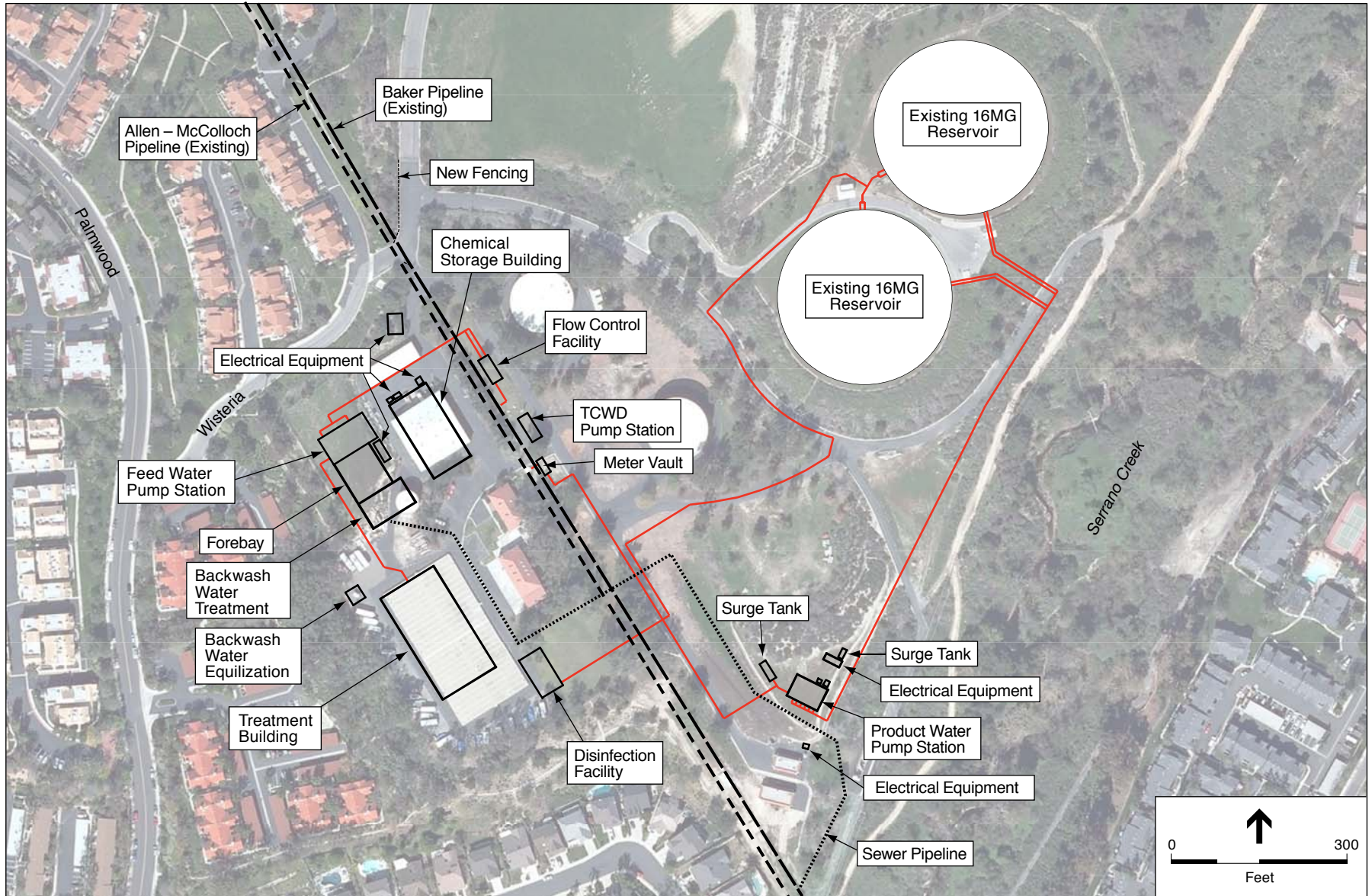
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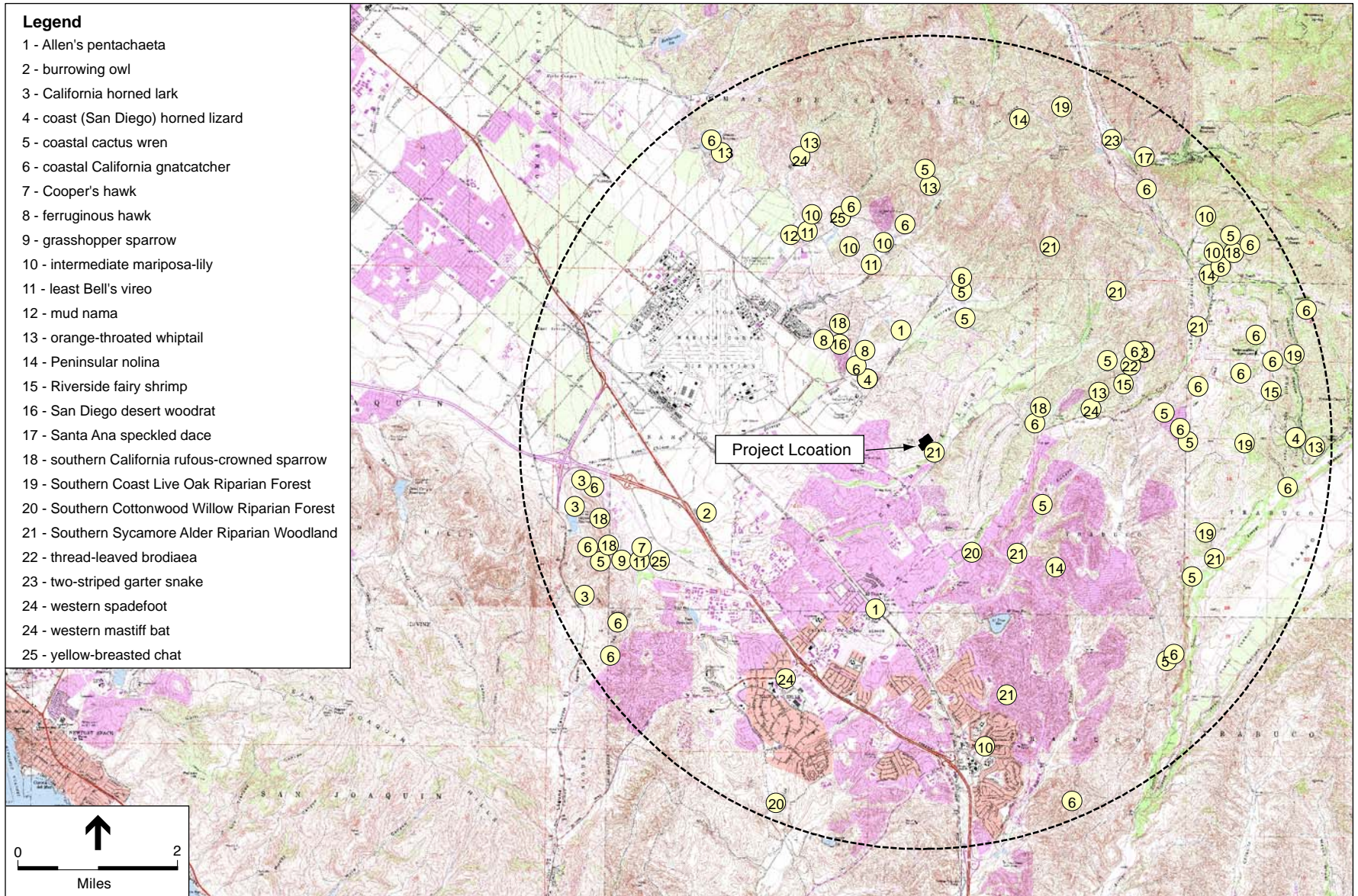




SOURCE: RBF Consulting; Carollo; ESA, 2010.

IRWD Baker Regional Water Treatment Plant . 208671

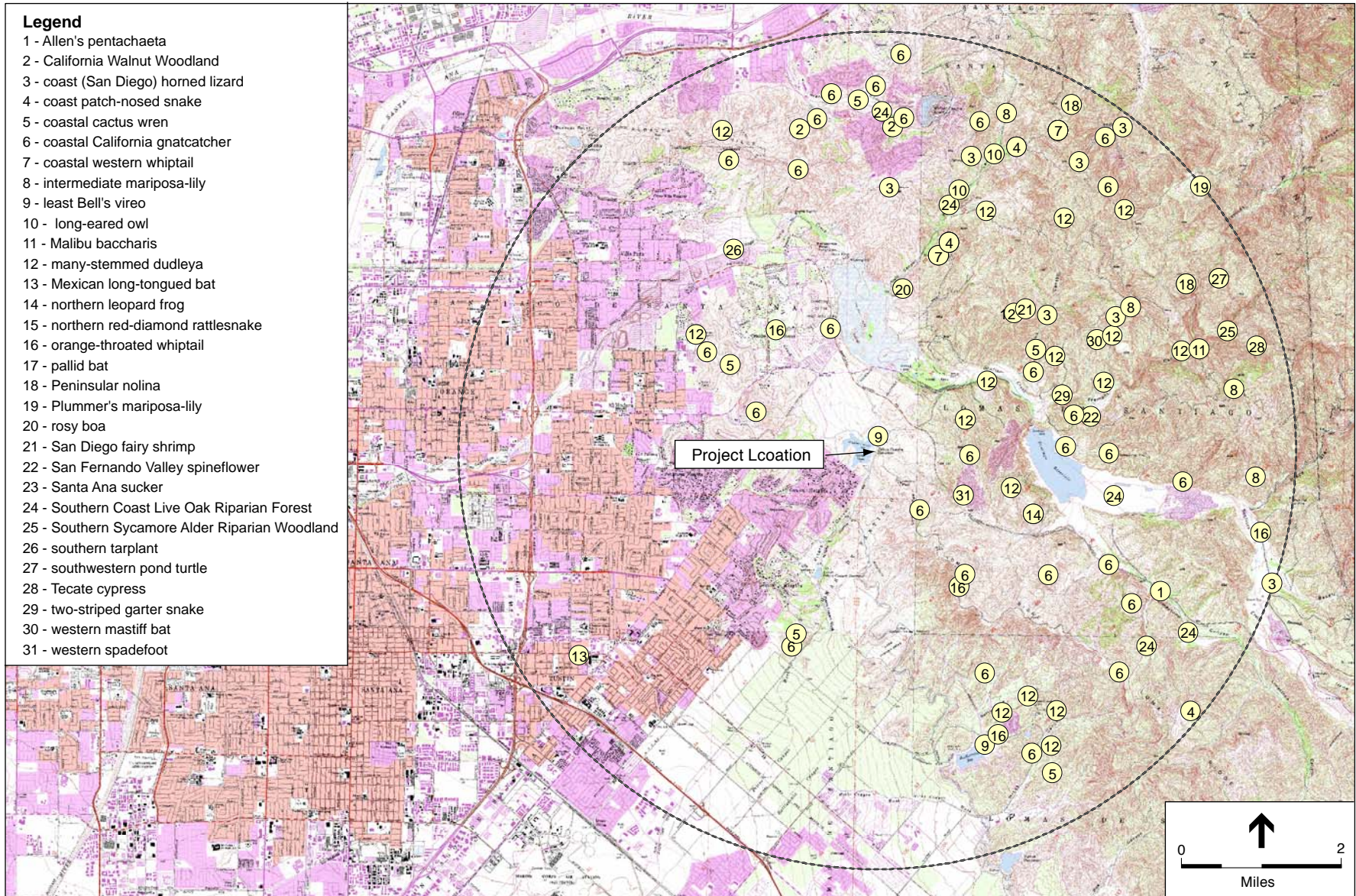
Figure 2
Proposed Baker
Water Treatment Plant



SOURCE: CNDDB, 2010.

IRWD Baker Regional Water Treatment Plant . 208671

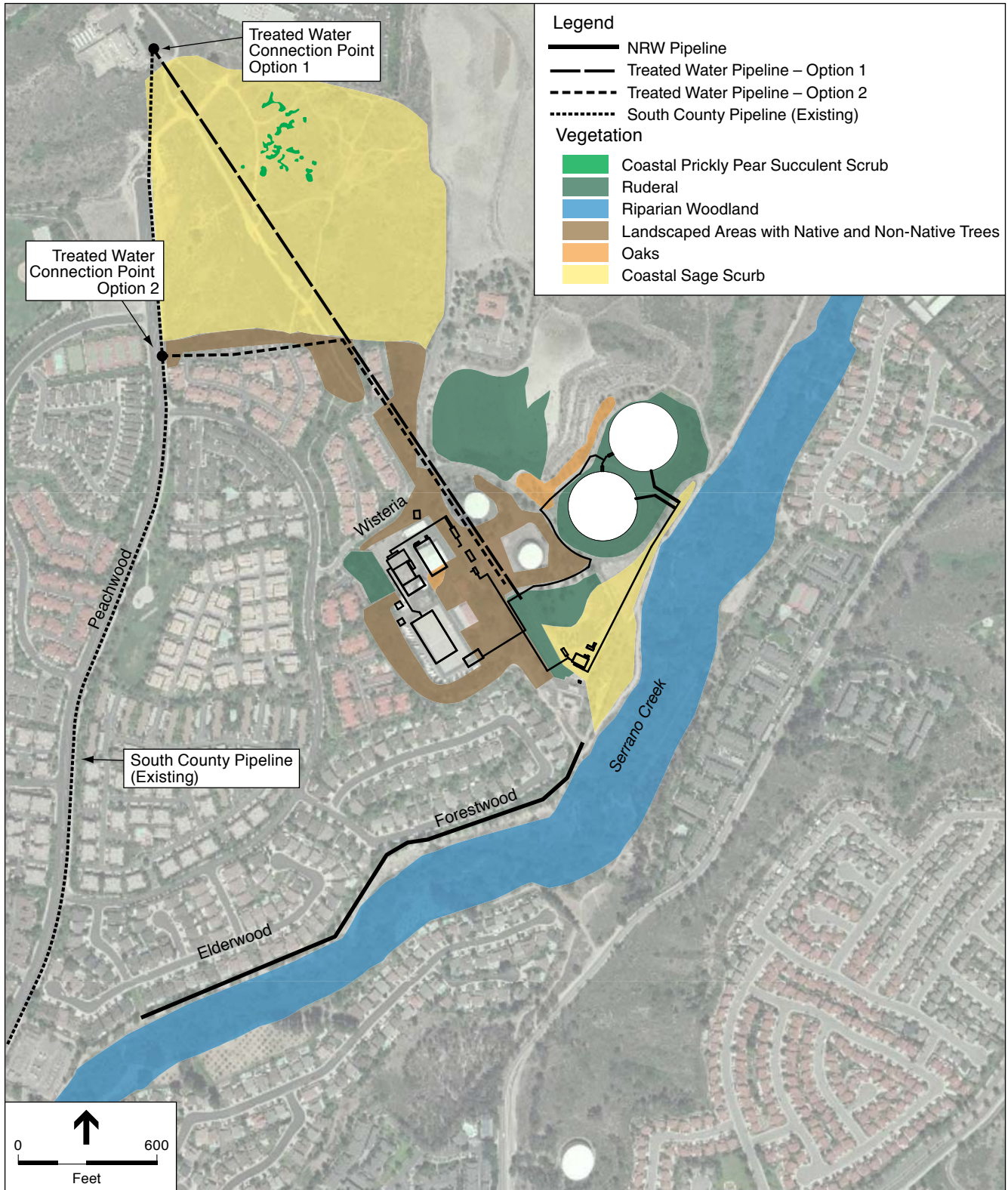
Figure 3
Special-Status Species Occurrences Within
5-Mile Radius of the
Baker Water Treatment Plant



SOURCE: CNDDB, 2010.

IRWD Baker Regional Water Treatment Plant . 208671

Figure 4
 Special-Status Species Occurrences Within
 5-Mile Radius of the
 Peter's Canyon Pump Station



SOURCE: RBF Consulting; ESA, 2010.

IRWD Baker Regional Water Treatment Plant . 208671

Figure 5
Plant Communities and Habitats

Appendix D

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM

IRWD Baker Water Treatment Plant

Introduction

In accordance with Section 15091(d) and Section 15097 of the CEQA Guidelines, which require a public agency to adopt a program for reporting and/or monitoring required changes or conditions of approval to substantially lessen significant environmental effects, the Mitigation Monitoring and Reporting Program (MMRP) is hereby adopted for this project.

This MMRP summarizes the mitigation commitments identified in the Baker WTP Project Final EIR (State Clearinghouse No. 2010051055). Mitigation measures are presented in the same order as they occur in the Final EIR. The columns in the MMRP table provide the following information:

- **Mitigation Measure(s):** The action(s) that will be taken to reduce the impact to a less-than-significant level.
- **Implementation, Monitoring, and Reporting Action:** The appropriate steps to implement and document compliance with the mitigation measures.
- **Responsibility:** The agency or private entity responsible for ensuring implementation of the mitigation measure. However, until the mitigation measures are completed, IRWD, as the CEQA Lead Agency, remains responsible for ensuring that implementation of the mitigation measures occur in accordance with the MMRP (CEQA Guidelines, Section 15097(a)).
- **Proposed Project Facilities:** The project component(s) to which the mitigation measure applies.
- **Monitoring Schedule:** The general schedule for conducting each monitoring task, either prior to construction, during construction and/or after construction.

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities				Monitoring Schedule	
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline		Treated Water Pipeline
Aesthetics								
AES-1: IRWD shall prepare a landscape plan during project design that includes specifications for perimeter vegetation to screen the Baker WTP from neighboring streets. The landscape plan also shall include specifications to maintain or replace vegetation onsite to the extent feasible.	<ul style="list-style-type: none"> Project design specifications shall include a landscape plan in accordance with mitigation measure. Include landscape plan in construction contractor specifications. 	IRWD			X		Prior to construction	
AES-2: IRWD shall restore areas disturbed during construction of the treated water pipeline and sewer pipeline by reestablishing pre-existing conditions including topography, repaving roadways, replanting trees, and/or reseeding or restoring with native plants typical of the immediate surrounding area. IRWD shall be responsible for monitoring the replanted areas for up to three years, or less if the revegetation is determined to be successful and sufficient to avoid excessive erosion.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. Retain qualified mitigation monitor to conduct annual inspections of revegetated areas and determine success. Maintain records of inspection in the project file. 	IRWD; Construction Contractor		X		X	X	After Construction
AES-3: The exterior nighttime security lighting installed on and around the project facilities shall be of a minimum standard required to ensure safe visibility. Lighting shall be shielded and directed downward, away from the line of sight of neighboring properties, to minimize impacts of light and glare. External security lighting shall be turned off automatically at night to the extent feasible.	<ul style="list-style-type: none"> Project design specifications shall include lighting specifications as required by the mitigation measure. Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. 	IRWD; Construction Contractor	X		X			Prior to and during Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities				Monitoring Schedule	
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline		Treated Water Pipeline
Air Quality and Greenhouse Gas Emissions								
AQ-1: General contractor shall implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. 	IRWD; Construction Contractor			X	X	X	During Construction
AQ-2: All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. 	IRWD; Construction Contractor			X	X	X	During Construction
AQ-3: General contractor shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off when not in use to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. 	IRWD; Construction Contractor			X	X	X	During Construction
AQ-4: All construction vehicles shall be prohibited from idling in excess of ten minutes, both on- and off-site.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. 	IRWD; Construction Contractor			X	X	X	During Construction
Biological Resources								
BIO-1: If Option 1 of the treated water pipeline is implemented, to avoid potential impacts to terrestrial special-status species, the following	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. Prior to construction, IRWD or 	IRWD; Construction Contractor					X	Prior to Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities				Monitoring Schedule
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	
<p>measures shall apply:</p> <p>IRWD shall retain a qualified biologist with a CDFG Scientific Collection Permit and Memorandum of Understanding to conduct preconstruction surveys for the California Species of Special Concern that have the potential to occur within the project impact area. These wildlife species include orange throated whiptail, coast (San Diego) horned lizard, and coast patch-nose snake. All special-status wildlife species observed within the project site during preconstruction surveys shall be relocated, at the approval of CDFG, to an approved site with suitable habitat for these species. Surveys and relocation of wildlife may occur prior to construction; however, focused surveys must occur within 30 days prior to construction to ensure that no special-status wildlife is present within the project site during construction. Survey and relocation methods shall be approved by CDFG prior to commencement of grading.</p>	<p>the construction contractor shall retain a qualified biologist to develop survey and relocation methods and subsequently conduct preconstruction surveys and relocation (if necessary) for Species of Special Concern within the project area.</p> <ul style="list-style-type: none"> Retain survey report and documentation of any relocation activities in the project file. 						
<p>BIO-2: For Option 1 of the treated water pipeline, exclusionary fencing (i.e., silt fencing) shall be installed around the perimeter of the construction area where native vegetation is present, or where suitable habitat for special-status (terrestrial) species is present, as determined by a qualified biologist. The exclusionary fencing shall be backfilled (or buried) at the base of the fence to exclude reptiles from entering the work area. Installation of exclusionary fencing shall be verified</p>	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. Prior to construction, IRWD or the construction contractor shall retain a qualified biologist to identify areas where native vegetation is present, or suitable habitat for special-status species is present, and determine where exclusionary fencing shall be installed. The retained biologist shall verify 	<p>IRWD; Construction Contractor</p>				<p>X</p>	<p>Prior to Construction</p>

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities					Monitoring Schedule
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline	
by a qualified biologist prior to the commencement of construction or ground disturbing activities.	<ul style="list-style-type: none"> installation of exclusionary fencing. Retain survey and documentation of exclusionary activities in project file. 							
<p>BIO-3: A preconstruction nest survey shall be conducted if construction and/or ground disturbing activities will commence between February 15 and August 15. To avoid impacts to native nesting birds, including coastal cactus wren, coastal California gnatcatcher, and least Bell's vireo, IRWD and/or its contractors shall retain a qualified biologist to conduct breeding bird surveys in potential nesting habitat within and adjacent to all project sites prior to construction or site preparation activities. Potential nesting habitat may include grassy and weedy areas, as well as shrubs and trees. Suitable nesting habitat in the vicinity of proposed disturbance areas shall be determined by the qualified biologist. The qualified biologist shall conduct a nest survey within five days of ground disturbance activities associated with construction, (such as site clearing, grading, or excavation) to determine if active nests of bird species protected by the Migratory Bird Treaty Act (MBTA) or the California Fish and Game Code are present in the construction zone or within a distance determined by CDFG or the qualified biologist.</p> <p>If ground disturbance activities are delayed, additional pre-construction surveys will be conducted such that no more than five days will have elapsed between the last survey and</p>	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. Prior to construction, IRWD or the construction contractor shall retain a qualified biologist to conduct preconstruction surveys in accordance with Mitigation Measure BIO-3. Retain copies of survey(s) in the project file. 	IRWD; Construction Contractor	X	X	X	X	X	Prior to Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities					Monitoring Schedule
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline	
the commencement of ground disturbance activities. Surveys shall include examination of trees, shrubs, and the ground within grassland for nesting birds, as several bird species known to occur in the area are shrub or ground nesters.								
<p>BIO-4: If active nests are found during surveys conducted in accordance with Mitigation Measure BIO-3, then the qualified biologist shall determine whether construction activities have the potential to disturb the nest(s) and determine appropriate construction limitations, which may include but are not limited to erection of sound barriers, full-time monitoring by a qualified biologist, or establishment of no-construction buffers (usually 300 ft for nesting song birds and 500 ft for nesting raptors and special-status bird species). In addition, the qualified biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure no inadvertent impacts to the nest occur. If necessary, limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel shall be instructed on the sensitivity of nest areas.</p> <p>The results of the survey, and any avoidance measures taken, shall be submitted to IRWD within 30 days of completion of the pre-construction surveys and construction monitoring to document compliance with applicable state and federal laws</p>	<ul style="list-style-type: none"> • Include mitigation measure in construction contractor specifications. • Prior to construction, IRWD or the construction contractor shall retain a qualified biologist to determine construction limitations and to serve as a construction monitor. • Retain copies of survey(s) and monitoring/inspection records in the project file. 	IRWD; Construction Contractor	X	X	X	X	X	Before and during Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities				Monitoring Schedule	
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline		Treated Water Pipeline
<p>pertaining to the protection of native birds.</p> <p>BIO-5: If Option 1 of the treated water pipeline is implemented, then coastal sage scrub and coastal prickly pear succulent scrub communities that are disturbed by construction shall be restored at the same location where impacts occur on a 1:1 ratio following the completion of construction activities. If coastal sage scrub or coastal prickly pear succulent scrub would be removed for construction purposes, a restoration plan shall be completed that specifies, at a minimum, the following: (1) the location of replacement sites; (2) the quantity and species of plants to be planted; (3) a schedule and action plan to maintain and monitor the re-vegetation area; (4) a list of criteria and performance standards by which to measure success of the planting sites; (5) measures to exclude unauthorized entry into the re-vegetation/enhancement areas; and (6) contingency measures in the event that mitigation efforts are not successful. This restoration plan shall be completed prior to construction of the proposed project. Restoration activities, whether onsite or offsite, shall reuse vegetative material from the site of disturbance to the extent feasible.</p>	<ul style="list-style-type: none"> If permanent removal of scrub communities would occur, then IRWD shall retain a qualified biologist to develop and implement the Restoration Plan. Retain copies of Restoration Plan and records of implementation success in the project file. 	IRWD				X	Prior to and after construction.	
<p>BIO-6: IRWD shall require construction contractors to implement the following measures during construction of the Baker WTP and the sewer pipeline:</p>	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to 	IRWD; Construction Contractor			X	X	X	During Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities				Monitoring Schedule
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	
<ul style="list-style-type: none"> The construction contractor shall install temporary erosion control measures around drains to reduce localized impacts to Serrano Creek in the area of the project and protect onsite drainages from excess sedimentation, siltation, and erosion. These measures shall consist of the installation of silt fencing, coirs, berms, and dikes to protect storm drain inlets and drainages. No changing of oil or other fluids, or discarding of any trash or other construction waste materials shall occur on the project site. Vehicles carrying supplies, such as concrete, shall not be allowed to empty, clean out, or otherwise place materials into natural areas on or immediately adjacent to the site. Any equipment or vehicles driven and/or operated within or adjacent to onsite drains shall be checked and maintained daily, to prevent leaks of materials that if introduced to Serrano Creek could be deleterious to aquatic life. No equipment maintenance shall be conducted near onsite drains. 	<ul style="list-style-type: none"> verify contractor compliance. Retain inspection records in the project file. 						
<p>BIO-7: During construction of the emergency overflow facility and associated rip rap, the construction contractor shall take measures to avoid impacts to sensitive riparian habitat within and surrounding Serrano Creek where feasible, such as installing construction impact boundaries marked by flagging or temporary fencing. If avoidance is not</p>	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. Retain inspection records in the project file. If riparian habitat cannot be 	IRWD; Construction Contractor			X		During and after Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities				Monitoring Schedule	
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline		Treated Water Pipeline
feasible, negative impacts to sensitive riparian habitat shall be mitigated at ratios based on the quality of habitat affected. In general, sensitive riparian habitat, such as Southern Sycamore Alder Riparian Woodland, shall be restored or enhanced at a ratio as determined in consultation with CDFG.	<ul style="list-style-type: none"> avoided, then retain a qualified biologist to develop and implement the mitigation and restoration plan in consultation with CDFG. Retain copies of the plan and records of implementation success in the project file. 							
BIO-8: Construction activities within Serrano Creek shall be limited to dry season periods to avoid wet weather flow conditions in the creekbed.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. Retain inspection records in the project file. 	IRWD; Construction Contractor			X		During Construction	
BIO-9: No activities shall occur within Serrano Creek until appropriate permits have been obtained from the US Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Game.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. Retain inspection records in the project file. 	IRWD; Construction Contractor			X		Prior to Construction	
BIO-10: A Eucalyptus Tree Cutting Permit shall be obtained from the City of Lake Forest prior to cutting, pruning or removing any eucalyptus trees during the restricted period, April 1 through October 31. The transportation of or disposal of infected eucalyptus trees or logs shall occur only as permitted.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. IRWD shall appoint a construction monitor to verify contractor compliance. Retain inspection records in the project file. 	IRWD; Construction Contractor			X	X	X	Prior to and during Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities				Monitoring Schedule	
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline		Treated Water Pipeline
Cultural Resources								
<p>CUL-1: Prior to the start of any earth-moving activity, an archaeological monitor shall be retained by the IRWD to monitor ground-disturbing activities associated with the construction of the treated water pipelines and the Serrano Creek sewer pipeline, including but not limited to grading, excavation, brush clearance and grubbing. The monitor shall be, or shall work under the supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (Department of the Interior, 2010). The duration and timing of monitoring shall be determined by the qualified archaeologist in consultation with the IRWD and based on the grading plans. Initially, all ground-disturbing activities shall be monitored. However, the qualified archaeologist, based on observations of soil stratigraphy or other factors, and in consultation with IRWD, may reduce the level of monitoring as warranted. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated.</p> <p>Due to the sensitivity of the project area for Native American resources, at least one Native American monitor may, if requested, also monitor</p>	<ul style="list-style-type: none"> • Include mitigation measure in construction contractor specifications. • Retain a qualified archaeologist to develop and implement Archaeological Monitoring plan. • Maintain periodic monitoring reports for the duration of time specified in the Monitoring Plan. • Retain copies of monitoring reports in the project file. • If requested, retain a Native American Monitor for all ground-disturbing activities at the project site. 	IRWD; Construction Contractor				X	X	Prior to and during Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities					Monitoring Schedule
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline	
ground-disturbing activities in the project area. The monitor(s) shall be selected from amongst the Native American groups identified by the Native American Heritage Commission as having affiliation with the project area.								
CUL-2: Unanticipated Discovery. During construction of all project components, if a cultural resource is encountered, construction activities shall be redirected away from the immediate vicinity of the find until it can be evaluated by a qualified archaeologist. If the find is determined to be potentially significant, the archaeologist, in consultation with the IRWD and appropriate Native American group(s) (if the find is a prehistoric or Native American resource), shall develop a treatment plan. Construction activities shall be redirected to other work areas until the treatment plan has been implemented or the qualified archaeologists determines work can resume in the vicinity of the find.	<ul style="list-style-type: none"> • Include mitigation measure in construction contractor specifications. • If significant cultural resources are found, the qualified archaeologist shall develop a Treatment Plan, in consultation with Native American representatives if appropriate. The Treatment Plan shall include the requirements of Mitigation Measure CUL-3. • Retain copy of Treatment Plan in the project file. • Retain records of Treatment Plan implementation in project file. 	IRWD; Construction Contractor	X	X	X	X	X	During Construction
CUL-3: Paleontological Mitigation and Monitoring Plan. Prior to the start of any earth-moving activity, IRWD shall retain an Orange County Certified Paleontologist. The Paleontologist shall prepare a Paleontological Mitigation and Monitoring Plan that provides for the treatment of paleontological resources in accordance with the mitigation guidelines for areas of high potential outlined by the SVP. The mitigation and monitoring plan shall address	<ul style="list-style-type: none"> • Retain a qualified paleontologist to prepare the Monitoring and Mitigation Plan that include requirements of Mitigation Measure CUL-3. • Retain copies of the Monitoring and Mitigation Plan in the project file. 	IRWD	X	X	X	X	X	Prior to Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities					Monitoring Schedule
			Raw Water Pump Station	OC-33 Meter Exchange	Baker WTP	Sewer Pipeline	Treated Water Pipeline	
pre-construction salvage and reporting; pre-construction contractor sensitivity training; procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report.								
CUL-4: Paleontological Monitoring. All earth moving activities in the Oso Sand Member of the Capistrano Formation shall be monitored full time unless the paleontologist determines that sediments are previously disturbed or there is no reason to continue monitoring in a particular area due to other depositional factors, which would make fossil preservation unlikely or deemed scientifically insignificant. If it becomes apparent to the paleontologist that bedrock will not be impacted in an area, monitoring may be suspended temporarily until bedrock is impacted again. Spot-checking by the paleontologist will be allowed to determine if bedrock is being impacted. If impacts to bedrock resume, full-time monitoring will resume. In the event fossils are exposed during earth moving, construction activities shall be redirected to other work areas until the procedures outlined in the Paleontological Mitigation and Monitoring Plan have been implemented or the paleontologist determines work can resume in the vicinity of the find.	<ul style="list-style-type: none"> • Include mitigation measure and Monitoring and Mitigation Plan in construction contractor specifications. • Retain a qualified paleontologist to implement the Monitoring and Mitigation Plan developed in accordance with Mitigation Measure CUL-3. The qualified paleontologist shall incorporate Mitigation Measure CUL-4 into the Monitoring and Mitigation Plan. • Maintain periodic monitoring reports for the duration of monitoring as defined by the Plan. • Prepare and file a mitigation report at the completion of the monitoring period as defined by the Plan. • Retain copies of weekly and final monitoring reports in the project file. 	IRWD; Construction Contractor	X	X	X	X	X	During Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Proposed Project Facilities					Monitoring Schedule
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<p>CUL-5: If human remains are encountered unexpectedly during construction excavation and grading activities, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC will then identify a Most Likely Descendent (MLD), of the deceased Native American, who will provide recommendations as to the future disposition of the remains. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices and taking into account the possibility of multiple human remains, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the MLD, as prescribed in this section (PRC 5097.98).</p>	<ul style="list-style-type: none"> • Include mitigation measure in construction contractor specifications. • Retain records of all inadvertent discovery evaluations in the project file. 	IRWD; Construction Contractor	X	X	X	X	X	During Construction
Geology, Soils and Mineral Resources								
<p>GEO-1: IRWD shall require the construction contractor to include best management practices (BMPs) in the Storm Water Pollution Prevention Plan for the project, to minimize soil erosion and sedimentation from the project sites, including but not limited to the</p>	<ul style="list-style-type: none"> • Include mitigation measure in construction contractor specifications. • Retain a qualified construction monitor to conduct routine inspections of BMP implementation during project construction. 	IRWD; Construction Contractor	X	X	X	X	X	During Construction

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following: use of sediment barriers and traps, silt basins, and silt fences.	<ul style="list-style-type: none"> Retain construction monitoring reports in project file. 							
GEO-2: Prior to approval of construction plans for the proposed project, a design-level geotechnical investigation, including collection of site-specific subsurface data shall be completed by IRWD for all project components. The geotechnical investigation shall be conducted by a certified engineering geologist or registered geotechnical engineer. The geotechnical investigation shall identify appropriate engineering considerations, including density profiles, approximate maximum shallow groundwater level, vertical and lateral extent of the saturated sand/silt layers that could undergo liquefaction, and potential presence of expansive soils. The geotechnical investigation shall recommend site-specific design criteria to mitigate potential risks due to liquefaction, landslides, subsidence, and expansive soils. Recommended design criteria shall be in accordance with SP 117 where appropriate (e.g., sewer pipeline) and become part of the proposed project.	<ul style="list-style-type: none"> Retain a qualified engineer to conduct a design-level geotechnical investigation. Require the design engineer to incorporate recommendations into project design. Verify recommendations have been incorporated into project design prior to initiation of construction. Retain the geotechnical report in the project file. Include the geotechnical report as part of the construction documents. 	IRWD	X	X	X	X	X	Prior to Construction
Hazards and Hazardous Materials								
HAZ-1: IRWD shall require the construction contractor to include the following BMPs in the SWPPP that would prevent the accidental release of hazardous materials. The plan shall include, but not be limited to, the following BMPs: <ul style="list-style-type: none"> Follow manufacturers' recommendations and regulatory 	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. Retain a qualified construction monitor to conduct routine inspections of BMP implementation during project construction. Retain construction 	IRWD; Construction Contractor	X	X	X	X	X	During Construction

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<p>requirements for use, storage, and disposal of chemical products and hazardous materials used in construction.</p> <ul style="list-style-type: none"> • During routine maintenance of construction equipment, properly contain and remove grease and oils. • Properly dispose of discarded containers of fuels and other chemicals. • In the event of a petroleum product spill, the contractor shall contain the spill and clean up the contaminated area in compliance with regulations with DTSC and RWQCB approval. Contaminated soils shall be removed and disposed of in accordance with applicable regulations. 	<p>monitoring reports in project file.</p> <ul style="list-style-type: none"> • Maintenance and operation records shall be retained in the project file. 							
<p>HAZ-2: IRWD shall require the construction contractor to implement the following best management practices during construction of the Raw Water Pump Station and OC-33 Meter Exchange to prevent wildland fires.</p> <ul style="list-style-type: none"> • During construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other flammable material. • Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. • All vehicles and crews working at the project site shall have access to functional fire extinguishers at 	<ul style="list-style-type: none"> • Include mitigation measure in construction contractor specifications. • Retain a qualified construction monitor to conduct routine inspections of BMP implementation during project construction. • Retain construction monitoring reports in project file. • Maintenance and operation records shall be retained in the project file. 	IRWD; Construction Contractor	X	X			During Construction	

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

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<p>all times.</p> <ul style="list-style-type: none"> Construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks. 									
Land Use, Planning, and Recreation									
<p>LU-1: For installation of the sewer pipeline, IRWD shall require the construction contractor to prepare and implement a Trail Detour Plan prior to construction. The plan shall:</p> <ul style="list-style-type: none"> Identify hours of construction. Include a work area delineation requiring trail detours. Identify and establish detours around construction where room is available without affecting vegetation. Install detour signs as appropriate. If detours are not possible identify signage requirements noting temporary trail closure. Post notices regarding upcoming trail detours and closures at trail heads and entry points at least 10 days in advance. 	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. 	IRWD; Construction Contractor					X	Prior to and during Construction	
Noise and Vibration									
<p>NOISE-1: To reduce daytime noise impacts due to construction activities, in addition to complying with the construction hours for standard construction activities, the project applicant shall require construction contractors to implement the following measures:</p> <ul style="list-style-type: none"> Construction shall be restricted to 	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. During construction, IRWD shall retain a construction monitor to perform site inspections to verify contractor compliance. Retain inspection records 	IRWD; Construction Contractor	X	X	X	X	X	X	During Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

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<p>the hours between 7:00 a.m. and 8:00 p.m., excluding Sundays or federal holidays, except as otherwise permitted by the City of Lake Forest or City of Orange.</p> <ul style="list-style-type: none"> • Equipment and trucks used for project construction shall use noise control techniques (e.g., mufflers, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds). • Adjacent land uses within 500 feet of the construction site shall be notified about the estimated duration and hours of construction activity at least 30 days before the start of construction. • A noise disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad mufflers, etc.) and would be required to resolve the noise complaints. All notices sent to adjacent land uses within 500 feet of the construction site and all signs posted at the construction site shall list the telephone number and e-mail address for the noise disturbance coordinator. 	<p>in the project file.</p>							

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

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NOISE-2: IRWD shall secure a noise variance from the relevant jurisdiction prior to nighttime construction activities that would generate noise in excess of noise standards.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. 	IRWD; Construction Contractor	X	X	X	X	X	Prior to Construction
NOISE-3: IRWD shall conduct a post-construction noise survey to ensure that operation of new equipment at the Baker WTP and Raw Water Pump Station is in compliance with the City of Lake Forest Noise Ordinance (11.16.040 Exterior Noise Standards) and City of Orange Noise Ordinance (8.24.050 Exterior Noise Standards) at the property boundary.	<ul style="list-style-type: none"> After construction, IRWD shall appoint a qualified acoustical consultant to perform a post construction noise survey to determine compliance with applicable regulations. Retain noise survey in project files 	IRWD	X		X			After Construction
Transportation and Traffic								
TR-1: For installation of Pipeline Option 1 and 2, the construction contractor shall prepare and implement a Traffic Control/Traffic Management Plan prior to construction. The plan shall: <ul style="list-style-type: none"> Identify hours of construction and hours for deliveries; Include a work area delineation requiring traffic control and flagging; Identify all access and parking restrictions, pavement markings and signage requirements (e.g., speed limit, temporary loading zones); Maintain access to residence and business driveways, public facilities, and recreational resources at all times to the extent feasible; Minimize access disruptions to businesses and 	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. Retain copies of the Traffic Control/Traffic Management Plan in the project file. Retain records of correspondence with residences and emergency service providers in the project file. 	IRWD; Construction Contractor	X	X	X	X	X	Prior to and during Construction

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IRWD BAKER WATER TREATMENT PLANT PROJECT

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residences; <ul style="list-style-type: none"> Notify affected residents and businesses prior to the start of construction; Include a plan to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities. 								
TR-2: IRWD shall obtain the necessary road encroachment permits or easements prior to construction and would comply with the applicable conditions of approval.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. 	IRWD; Construction Contractor					X	Prior to Construction
TR-3: During construction of the treated water pipeline, IRWD shall require that the construction contractor notify the responsible law enforcement agencies and fire department two weeks prior to the start of work as to when and where construction would begin and end, and shall coordinate their emergency access plans and procedures accordingly.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. Retain records of correspondence with emergency service providers in the project file. 	IRWD; Construction Contractor	X	X	X	X	X	During Construction
Cumulative Impacts								
CUM-1: IRWD shall communicate and coordinate project construction activities and the project's Traffic Control Plan with the City of Lake Forest. Phasing of project construction shall be coordinated to minimize cumulative impacts to traffic and circulation.	<ul style="list-style-type: none"> Include mitigation measure in construction contractor specifications. Retain records of correspondence with City of Lake Forest in the project file. 	IRWD; Construction Contractor			X	X	X	Prior to Construction

